THE JOURNAL
OF THE
Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

Vol. XXVI JANUARY, 1927 No. 1

ORIGINAL ARTICLES

THE CARDIOVASCULAR SYSTEM IN DISEASES OF THE THYROID GLAND*

CYRUS C. STURGIS, M. D.
BOSTON, MASS.

The cardiovascular system suffers more in diseases of the thyroid gland than any other system of the body. It is essential, therefore, that physicians who encounter patients with thyroid disease should have a clear understanding of the cardiac complications and their proper management.

As the thyroid gland is affected with various pathological conditions, which vary widely in their characteristics, causation and frequency of cardiac involvement, it is necessary to classify more important abnormalities, as an introduction to a discussion of the associated cardiac complications. For our purposes the main groups of thyroid diseases may be designated as follows:

1. Diseases of the thyroid gland which are associated with an elevated basal metabolism. There are two conditions which are included in this group, exophthalmic goitre and adenoma with hyperthyroidism.
2. A disease of the thyroid gland which is characterized by a low metabolism. Myxedema or hypothyroidism is the only condition to be included in this group.
3. Diseases of the thyroid gland in which there is a normal metabolism. This group is represented by simple colloid goitre and adenoma without hyperthyroidism.

It is recognized that the most common and, therefore, the most important cardiovascular complications occur in exophthalmic goitre and toxic adenoma and it is concerning the heart in these two conditions that I wish to devote most of my attention. Before doing so, however, I wish to consider briefly the condition of the heart in myxedema. This is a subject which is of importance but has received little attention until recently.

In 1925 Fahr[1] emphasized that definite objective signs and subjective symptoms of heart failure may occur in this type of thyroid disease and a marked improvement may follow the administration of dried thyroid gland by mouth. In our experience at the Peter Bent Brigham Hospital in a series of 34 patients with definite evidence of myxedema, two had chronic cardiac valvular disease, six had chronic myocarditis with angina pectoris as an additional complicating factor in three, three had rather marked hypertension, and three had minor cardiac disturbances. Therefore, approximately 40 per cent of the patients whom we have observed were found to have definite injury to the heart which was either incidental or due to the myxedema. This fact is of importance from at least two standpoints:

1. In some instances these patients had been treated for the cardiac condition and it had not been recognized that they were likewise suffering from myxedema. They did not, therefore, receive the appropriate treatment.
2. In other patients, the myxedema and the cardiac condition were both recognized but dried thyroid gland, even when administered in moderate dosage, produced serious symptoms, and in one instance death, as the result of a too sudden strain on the

*From the Medical Clinic of the Peter Brigham Hospital, Boston, Mass.

heart. I have a patient under my observation at present who illustrates some of the difficulties and dangers of treatment when myxedema is complicated by heart disease. This patient has never been able to take more than one-half grain of dried thyroid gland daily, which is inadequate to cure the myxedema, but larger doses can not be given as the added strain which is placed upon his heart by the medication causes him to be susceptible to severe attacks of angina pectoris which are induced by the slightest exertion. Before thyroid gland is administered in the customary dosage, the status of the cardiovascular system should be carefully appraised and if evidence exists that any degree of impairment is present, it is safer to be content with a dose as small as one-half grain daily, and await weeks or months for the more dramatic manifestations of recovery from the myxedema. A more enthusiastic desire to hasten the cure, may result in a fatal termination by a failure of the myocardium to be equal to the extra burden which is too suddenly imposed upon it.

The next group of thyroid diseases to be considered from the standpoint of the cardiovascular system is the one which is characterized by an elevation of the basal metabolism and includes exophthalmic goitre and adenoma with hyperthyroidism. The cardiac complications in these two conditions are of much greater importance than in any of the other thyroid diseases as they are commonly encountered and they may cause a long period of invalidism and the ultimate death of a patient. There is a mass of clinical observations, statistics and theories concerning the relation of the heart to these two diseases but these, in part, have a tendency to confuse rather than clarify, and various important questions are left unsettled. The most significant points about which definite information is desired are concerned with the following:

1. The relation of the heart to prognosis.

2. The management of these cardiac complications.

Different observers estimate that 25 to 50 per cent of the total number of patients with these two thyroid diseases have serious cardiac complications. The statistical determination of the frequency of cardiac involvement in thyroid disease is important but it may be misleading as it is not always permissible to apply the result of statistics to a single patient whose prognosis you have for consideration. For my own experience I am content to say that serious heart failure may arise commonly and that this is not an unexpected complication which may result in the patient's death or in chronic invalidism, if unrelieved.

For the purpose of illustration let us consider the typical development of cardiac symptoms in a patient 35 years of age with all of the symptoms and signs of exophthalmic goitre. Practically every such patient has three symptoms which are commonly associated with heart disease. These are shortness of breath on exertion, tachycardia with a rate which is usually above 90 per minute when the patient is resting quietly, and palpitation which is almost constantly present, even when the patient is resting. Cardiac pain may also be an additional symptom in the early stages of the disease, but it is less common than the other three complaints. This pain, when present, is usually in the region of the apex of the heart or toward the anterior axillary line. It is not severe and does not radiate in any direction. All of these symptoms which are referred to the heart are usually observed early in the course of the disease, but it should be emphasized that they **are** not evidence of cardiac damage but are merely an indication of the added strain which has been placed upon the cardiovascular system. Similar symptoms may occur, for example, in a normal person when exercising or in a patient who develops fever of any type. If the thyroid condition continues without remission for weeks or months, the dyspnea, tachycardia and palpitation become more marked and the patient is very likely to develop attacks of irregular heart action which vary in their duration from a few hours to several days. Examination of a patient at such a time will usually disclose, (1) a pulse deficit, (2) a pulse rate at the wrist which is above 100 per minute, and (3) an irregularity of the pulse in force and rhythm. When these findings are observed, it is generally safe to conclude that auricular fibrillation is present. Other disturbances of cardiac rhythm may develop, such as auricular flutter or partial heart block but these are rare in comparison to auricular fibrillation which is relatively common. With the onset of auricular fibrillation the patient may still have a fairly efficient heart muscle. It more frequently happens, however, that with the appearance of this cardiac irregularity there are increasing signs of cardiac failure such as marked dyspnea, orthopnea, rales at the bases of the lungs, increase in

the size of the liver and edema of the extremities. An end picture such as this which results in a long period of invalidism and finally death, may occur in the course of a year or more commonly in a space of several years in untreated patients, depending a great deal on the presence or absence of spontaneous remissions in the course of the thyroid disease. It is well recognized that patients with exophthalmic goitre may spuntaneously recover in as short a time as five or six months and when this occurs the heart usually suffers no permanent damage. It is common, however, to observe a series of remissions and recurrences which occur over a long period of years in patients who have not received satisfactory treatment. Each recurrence produces more injury to the heart until the complicating cardiac failure is more important to the patient than the thyroid disease which is the underlying cause. Several years ago I observed a patient who had apparently experience five exacerbations and remissions of exophthalmic goitre over an interval of fifteen years, during which time he had received no other treatment than general medical measures. Each time the symptoms of exophthalmic goitre appeared, the cardiac complaints became more pronounced and when he first came under my care the symptoms of exophthalmic goitre had subsided. His chief difficulty then was with his heart as he had evidence of advanced cardiac failure which ultimately was the cause of his death. This patient's experience illustrates that during the course of exophthalmic goitre there may be periods of marked improvement but there is also a tendency toward a recurrence of the disease which may eventually result in serious cardiac complications.

The end result on the heart in toxic adenomatous goitre is practically the same as in exophthalmic goitre as cardiac injury occurs with equal frequency in both conditions. Apparently the toxic agent in adenoma with hyperthyroidism is of a milder nature but its action proceeds without remission for a long period of years in untreated patients. As the average age of the patients with toxic adenoma is greater, the injury to the heart is, therefore, of a more serious type. In patients with exophthalmic goitre it is likewise true that cardiac damage is usually more extensive if the patient is over 50 years of age. I believe it is an important fact to recall in this connection that as persons approach the age of 40 or 50 years they are more prone to develop heart disease as the cardiovascular system at this time is more susceptible to injury than it is at a younger age.

THYROID DISEASE SIMULATING PRIMARY CARDIAC CONDITIONS

It is not rare to observe patients with exophthalmic goitre in whom the striking and obvious features of the disease, the exophthalmos and goitre, are lacking, and in whom the chief complaints are almost exclusively referable to hte heart. Patients presenting such a clinical picture are sometimes regarded as having primary heart disease and the thyroid condition, which is the underlying cause, is unrecognized. It should be emphasized that neither the presence of exophthalmos or enlargement of the thyroid gland is essential to the diagnosis of exophthalmic goitre. Exophthalmos occurs in only a certain percentage of these patients and the thyroid gland may show no clinical exidence of enlargement and yet display the most intense hyperplasia on pathologic examination. Such patients with obscure exophthalmic goitre are sometimes erroneously classified as having chronic myocarditis of unknown etiology. In other instances, the incorrect diagnosis of mitral stenosis is made on the basis of a loud first sound at the apex and a thrill which is present over the lower precordium. This is often regarded as presystolic in time but more accurate observations usually shows that it occurs during systole of the heart. Such a thrill has no pathologic significance and may be present in any individual who has a thin thoracic wall and in whom the action of the heart is forcible. In other patients with toxic thyroid disease, the diagnosis of aortic insufficiency may be made on account of the collapsing or water hammer pulse which is often associated with this type of valvular lesion. This also is not infrequently observed in patients with exophthalmic goitre for in the latter disease there is often an elevated systolic and a diminished diastolic blood pressure which results in a pulse of this character. The diagnosis of aortic insufficiency should be easily eliminated as patients with exophthalmic goitre do not have the characteristic diastolic murmur of this condition unless there is an entirely independent valvular lesion present which is due to some other cause. It is not rare to observe systolic murmurs in patients with toxic thyroid conditions but they are usually of no importance except that they are occasionally responsible for the incorrect diagnosis of mitral insuf-

ficiency. It is not necessary to enter into the differential diagnosis between primary heart disease and exophthalmic goitre except to say that a careful study of the patient's symptoms and signs in conjunction with accurate basal metabolism determinations should disclose the correct diagnosis without difficulty. The failure to recognize the underlying cause of the cardiac condition is a serious mistake as the patient is denied the benefit of the proper therapy.

THE TREATMENT OF CARDIAC COMPLICATIONS IN TOXIC THYROID DISORDERS

The rational treatment of the cardiac complications of exophthalmic goitre and toxic adenomatous goitre must be directed toward the abnormal condition of the thyroid gland which is the underlying and fundimental cause. Here lies a great opportunity from a therapeutic standpoint, as it is one type of heart disease which can be cured or greatly relieved often with a dramatic success. While all physicians are not in accord concerning the most efficacious mode of treatment of toxic thyroid disorders, I firmly believe that in most patients surgery offers the greatest possibility of a cure in the shortest length of time. When the cardiac condition is advanced in these patients the first indication for treatment is to improve the condition of the patient to such a point that surgical procedures may be carried out with safety. Unless the patient is in the terminal stages of thyroid disease, this is usually possible although a considerable period of time may be necessary for its accomplishment. The management of a patient with congestive heart failure and a toxic disorder is, therefore, of the utmost importance and may be outlined as follows.

The first indication is to relieve the heart of all unnecessary work. This is best accomplished by complete rest in bed. As these patients are exceedingly nervous and apprehensive they will secure more rest if they have quiet surroundings with special nurses in attendance, if this is possible. The psychic aspect of patients with toxic goitre is an exceedingly interesting and important one from a therapeutic standpoint as they are characteristically emotionally unstable and often unreasonable in their complaints and demands. As in any type of patient, this aspect should be handled with tact and diplomacy in order to secure mental quiet as well as physical rest.

If the patient's condition is critical from a cardiac standpoint, sleep should be secured by morphine in one-sixth to one-fourth grain doses subcutaneously as a temporary therapeutic measure. If the patient's respirations show an irregularity of the Cheyne-Stokes type or if orthopnea is distressing, it is advisable to give five to eight grain doses of caffein-sodio-benzoate intramuscularly at the same time. Very often it is possible to secure sleep by the use of veronal or luminol, but I have not had success in this type of patient with the milder sedatives such as the bromides.

The diet for patients with toxic thyroid disease in whom there are cardiac complications should be a liberal one as they are usually 20 to 30 pounds under weight. Food should not be forced if the cardiac failure is extreme but at least a moderate amount of nourishment is advisable and should be given without the limitation of any particular variety except salt, which should be permitted in only small amounts if edema is present. The presence of definite pitting edema is likewise an indication for the control of the patient's fluid intake. The consumption of liquid can not be curtailed to the same low level as it is in patients with cardiac failure due to other causes for patients with exophthalmic goitre and adenoma with hyperthyroidism require more water to counterbalance the large amount which is lost through excessive sweating and the increased excretion of moisture through the lungs. A permissible fluid intake would be approximately three pints in 24 hours even in the presence of a moderate amount of subcutaneous edema. In the absence of edema and an excess of the free fluid in the serious cavities of the body, liquids may be given up to two or three quarts in 24 hours, but no attempt should be made to force the patient to take a large amount of liquid as it may have an injurious effect.

The drug treatment of patients with toxic thyroid disorders and serious cardiac complications, is highly important and the careful direction of medication in such patients is essential in order to secure the proper results. The use of morphine and the hypnotics to secure rest has already been considered. Within recent years it has been demonstrated that another drug is of great value under certain circumstances. If the patient has the syndrome which we characterize as exophthalmic goitre as contrasted to adenoma with hyperthyroidism, iodine will produce a remarkable remission with few exceptions when given as Lugol's solution in the average dosage of five minims three times

daily. Whatever may be the mode of action of this drug, all observations agree that in the course of four or five days a most beneficial result usually follows its use, as manifested by a pronounced drop in the basal metabolism with a resultant diminished demand on the heart muscle, decreased restlessness, a fall in the pulse rate, often to normal limits, and a disappearance of nausea, vomiting and other symptoms of an impending thyroid crisis if these symptoms have been present. Following the use of iodine in these patients likewise the distressing cardiac symptoms such as dyspnea, orthopnea, and palpitation usually become much less marked or may disappear entirely. The result from the use of iodine under these conditions may be no less dramatic than the effect of insulin in patients with diabetic coma. Occasionally a patient with exophthalmic goitre will not respond to iodine therapy from some unknown reason but nevertheless it should be used in these patients with the confident expectation of success in almost all. After the drug has been given and a remission secured, it is essential that the daily dosage should be continued until a cure is affected by surgical measures or other means. Otherwise a recurrence of symptoms will follow its omission within 24 to 48 hours. It is important to emphasize that iodine produces only a temporary remission and it is during this time that the most favorable opportunity for carrying out surgical measures is present. In my opinion it is advisable to give iodine to a patient with exophthalmic goitre only under two conditions, (1) when it is desirable to secure a remission in the course of the disease in order that the optimom conditions for operation can be secured. After one remission has been produced it is not likely that a second one of the same extent will follow the use of iodine, (2) in an acute thyroid crisis or when the patient is in eminent danger of death from cardiac failure. In both of these conditions it may be a life saving measure.

It is unfortunate that in adenoma with hyperthyroidism, iodine does not appear to be of value and, therefore, the clinician must manage the patient's condition without recourse to this valuable drug. While there has been some difference of opinion concerning its use in patients with toxic adenomatous goitre, I have never produced an effect either beneficial or otherwise in these patients. There is no contra-indication to its use, however, and it should be given if the patient is considered to have a toxic adenoma but even the remote possibility of a hyperplastic goitre exists.

Another indispensable drug which is indicated in all patients with toxic goitre, if evidence of cardiac failure exists, is digitalis. Digitalis therapy is often of great benefit to the patient although I have the distinct impression that the same satisfactory results are not obtained in patients with cardiac failure due to toxic thyroid disorders as it is in those in whom the cardiac condition is associated with other causes. In general it should be given to all patients who have

(1) Auricular fibrillation, either permanent or transient.

(2) Marked dyspnea or orthopnea.

(3) Other obvious signs of cardiac failure such as edema of the ankles, enlarged liver or rales at the bases of the lungs.

It is of no advantage to give digitalis to patients with toxic thyroid conditions unless some definite indication exists. In addition to those which have been mentioned above, it is advisable to question all patients carefully for a history of paroxysmal attacks of palpitation and tachycardia which occur in a moderate number of these patients. As such attacks are usually due to transient auricular fibrillation, they are of importance because patients with such a history often develop this arrythmia either during or immediately following an operation on the thyroid gland. While I have never witnessed a fatality due to such a complication, it appears to be good judgment to digitalize such patients prior to operation, for the patient is then saturated with the drug which most satisfactorily controls the condition.

It is true that actual harm may result from the use of digitalis unless it is given with care. The well known advice to give a dose of moderate size at intervals of several hours until a beneficial effect is attained or toxic symptoms produced, such as nausea and vomiting, should not be followed in patients with toxic thyroid disorders. In these patients it is not uncommon to observe toxic symptoms from digitalis before there is a striking decrease in pulse rate, a diuresis, or relief from dyspnea. Very satisfactory results, however, may follow the use of the drug in doses of moderate size. This may be carried out in a practical way by giving ½ grain of the powdered leaves of standard strength for every 2.5 pounds of patient's body weight. If digitalis has not been given within the two previous weeks, one-half of the dose can be administered at once and the re-

mainder in doses of 1½ grains every four to six hours until the total amount has been taken. The last three or four doses should be given with extreme caution and the drug immediately discontinued if loss of appetite, nausea or vomiting occurs. After the total dosage has been given, it should be discontinued for several days and then resumed in amounts of 1½ grains daily, which is the dose calculated to replace approximately the amount which is destroyed by the body every 24 hours. This so-called maintenance dose can be continued indefinitely in most patients, thereby keeping the heart under the continuous action of the drug.

In the acute cardiac emergencies, which are sometimes encountered in association with exophthalmic goitre and toxic adenoma, it is often of value to remove 300 to 500 c.c. of blood by phlebotomy if the patient's condition seems to be critical. This therapeutic procedure is not used as often as it should be, especially by the younger group of present day clinicians, perhaps as a result of its abuse in the past, but it may give great relief when properly used and in some instances the patient's life may be saved as a result.

Quinine sulphate is another drug which deserves mention although it is less valuable than iodine or digitalis in the treatment of these patients. Foster[2] recommends the use of quinine sulphate in patients with toxic goitre in whom auricular fibrillation is present, provided the rhythm does not become regular following full doses of digitalis. It is true that quinine will cause the heart to resume a regular rhythm in some patients but in my experience this has not been accompanied by a greater improvement than is ordinarily obtained by the use of other measures such as digitalis and rest. Furthermore, it is now well recognized that the use of quinine may be followed by untoward effects, either from the release of emboli from the auricle when normal rhythm is resumed, or by respiratory paralysis. The former is more likely to occur if the auricular fibrillation is of long standing. It would seem logical to use quinine sulphate in patients who have frequent paroxysmal attacks of auricular fibrillation which are not relieved by the ordinary methods. The drug should be administered according to the method recommended by Foster, who advises that 7½ grains be given every four hours, day and night. If the rhythm does not become regular after six or eight doses, the dose may be doubled for 36 hours. If the cardiac irregularity does disappear, the dose should be reduced to two or three grains daily and this should be continued for a long period.

I have outlined the plan whereby the acute cardiac emergencies occurring during the course of toxic thyroid disease may be managed and also given the mode of treatment designed to place the heart in the best possible condition prior to thyroidectomy. In some patients it is necessary to carry out pre-operative treatment for only eight to ten days. In others much more time is essential. In general, it suffices to say that a patient should never be operated upon if edema is conspicuous or if there is orthopnea or a wide pulse deficit. A large majority of patients with toxic thyroid disease and cardiac complications can be operated upon with a surprisingly low mortality, provided the proper pre-operative treatment has been used. In fact, it is rare to observe a death due to cardiac failure following an operation under these conditions.

The results of the efficient treatment of the thyroid disease on the cardiac complications in some instances is marvelous. In young individuals, in whom the disease has not been of long duration, the cure of thyroid condition is usually followed by a disappearance of practically all cardiac symptoms and signs. In other patients, in whom the myocardium has suffered greater damage, the improvement is often striking. If auricular fibrillation has been present it may disappear, but even though it does not, the functional efficiency of the heart may be only slightly impaired, provided the appropriate cardiac therapy is prescribed following the operation. In patients who are over 50 years of age and in whom the disease has been present with serious cardiac symptoms for a long interval, the outlook for recovery of the cardiac efficiency is less promising. In such patients the cardiac damage is often irreparable although there may be some improvement and the patient may live for years, but they are frequently doomed to the life of a chronic cardiac invalid. The fate of such patients should impress upon our minds, therefore, the necessity of the early relief of the underlying thyroid condition in order to avoid just such serious and permanent cardiac complications. The cure of the toxic thyroid disorder can not always restore an injured myocardium to normal, but it will, in every patient, relieve the extra burden which the heart is obliged to carry.

There still remains for consideration the management of the cardiac condition of the patient who refuses operation, or for whom the patient's physician considers an operation to be inadvisable. In general, the same principles should be applied in these patients, in a modified form, as have been given in the previous paragraphs. They should lead a very careful and restricted life with ample rest, regardless of an otherwise excellent condition. It is a good rule to follow that they should never indulge in any exercise which causes a definite degree of shortness of breath. The presence of pitting edema is an indication for a rest in bed of at least several weeks and often longer. Digitalis should be given in full doses if there is any evidence of cardiac failure. It is not advisable to give iodine in any form to these patients unless the cardiac condition becomes very serious or an impending thyroid crisis is at hand. The improvement following its use is only temporary and if surgical measures are contemplated at a later date the patient will probably not have the great advantage of an operation during an iodine remission, as a second one is less likely to be produced.

Quinine hydrobromide is an additional drug which I have not previously mentioned and should be given a trial in these patients. It has long been used in patients with toxic thyroid disorders, and while its curative value has not been demonstrated, experience teaches that the palpitation, which is so distressing in some instances, is somewhat diminished by doses of five grains three or four times daily.

If surgical measures are with-held, it is of distinct value, from the general condition of the patient and also the cardiac complications, to treat patients with the syndrome of exophthalmic goitre with the Roentgen-rays. I have never observed improvement to follow the use of this therapeutic agent in patients with toxic adenoma. If the Roentgen-ray is used, treatments should be given at intervals of three weeks for a maximum number of four. The patient's condition should be determined by the estimation of the basal metabolism and a careful consideration of the symptoms and signs of the disease. The indiscriminate treatment of thyroid conditions by the Roentgen-ray is sometimes followed by true myxedema as a result of excessive irradiation. As experience in recent years has made us aware of this possibility there is no excuse for its occurrence. Other complications, which may be incident to Roentgen-ray treatment, are remote possibilities and need not deter a physician from recommending its use. If the basal metabolism does not approach normal, following a course of four treatments, it is advisable to keep the patient under observation for an additional period of six weeks, which is an arbitrary interval, selected because it is considered that any improvement which can be attributed to this means of therapy should appear by the end of that time. If the patient's condition requires it, a second and a third course of treatment may be given although, if marked improvement does not follow the first four exposures, it is usually not possible to accomplish much good for the patient by this mode of therapy. In a small group of patients the use of the roentgen ray has been followed by the disappearance of all symptoms associated with exophthalmic goitre and with this there has likewise been marked improvement in the condition of the heart if it has shown signs of involvement.

THE HEART IN SIMPLE GOITRE AND NON-TOXIC ADENOMATOUS GOITRE

There still remains for consideration the cardiac complications which are associated with diseases of the thyroid gland in which the basal metabolism is within normal limits. With the present state of our knowledge there is no evidence to prove that the heart is ever injured by the diseases of the thyroid gland of this group, which includes simple colloid goitre and non-toxic adenomatous goitre. There are several interesting problems, however, which arise concerning the proper management of patients who have these thyroid disorders and at the same time complain of symptoms which are suggestive of heart disease. These patients may complain of shortness of breath on exertion which is not due to heart disease but is associated with pressure of the enlarged thyroid gland upon the trachea. There is no reason why the heart should be damaged and there are usually no other symptoms or signs or cardiac involvement. If the dyspnea is severe enough, surgical intervention is indicated to remove the pressure which should give complete relief.

The type of patient in whom errors of treatment have been made rather frequently is the young person who has a slight enlargement of the thyroid gland of the simple goitre type and also complains of nervousness, slight palpitation and dyspnea. On examination there is found a tachycardia and occasionally a simple arrythmia such as a rare extra systole.

These patients usually have two conditions which are purely incidental in their association, (1) a simple goitre or a non-toxic adenomatous goitre, and (2) a functional cardiac condition of the so-called "irritable heart" or effort syndrome type. Such patients, in addition, usually complain of ease of fatigue and other symptoms of a neurasthenic nature. Their heart is never enlarged, in fact, roentgrams often show that it is smaller than the average. Other signs of cardiac involvement are always lacking, such as rales at the bases of the lungs and true pitting edema. It is true that when such patients are first examined in a practitioner's office the heart rate is usually very rapid, but the tachycardia differs from that which is observed in toxic disorders, as the rate approaches normal when the patient is mentally and physically at rest. In exophthalmic goitre and toxic adenomatous goitre the rapid rate is persistent and even present when the patient is asleep. There is no indication to remove the simple goitre or non-toxic adenomatous goitre from the standpoint of the heart for the patient would be subjected to a major operation without effecting a cure of the purely functional cardiac condition. The correct treatment of the cardiac complaints in such a patient, in most instances, is reassurance and carefully graduated and supervised physical exercises.

There remains one other clinical picture for discussion and that is the syndrome which is presented by the patient who has a non-toxic adenomatous goitre and obviously serious heart disease with definite evidence of cardiac failure, or stating the situation more tersely, the association in a patient of a nodular goitre, a normal basal metabolism, and chronic heart failure. In such an instance it is impossible to deduce that the thyroid abnormality has a casual relationship to the cardiac condition. It is more correct to assume that the heart condition belongs to that large group which has been classified under the head of chronic myocarditis of unknown etiology. The co-existence of a goitre is no proof that it is the cause of the cardiac symptoms, and its surgical removal is not followed by an improvement or disappearance of the cardiac complaints. It should be kept in mind, however, that a non-toxic adenomatous goitre is a potential source of cardiac damage for it may gradually become toxic and produce the symptoms of hyperthyroidism in association with an elevated metabolism. When this does occur, an added burden is placed upon the heart and cardiac injury may result. Therefore, all patients with non-toxic adenomatous goitres should be kept under observation for evidence of toxic symptoms and cardiac injury, and operation advised early in the transition from the non-toxic condition.

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BACTERIAL FOOD POISONING*

J. C. GEIGER, M. D., Dr. P. H.
(Professional Lecturer, Dept. of Hygiene and Bacteriology, University of Chicago; Assistant Commissioner of Health)
CHICAGO, ILL.

With the growth of scientific knowledge regarding the specific dangers from insufficient, vitamin deficiency and unbalanced diets, and of overconsumption, improper storage and understerilization of foods, attention has been given to the effect of food upon disease and the death rate. Because of the complexity of the problem, there is not today a definite and complete understanding as to conditions under which a diagnosis of food poisoning is justified. Recent epidemiological investigations, however, have shown that the term should probably be limited to the intoxications of B. botulinus and the poisonings by food contaminated with the organisms of the paratyphoid-enteritidis group and perhaps other bacteria.

Reliable facts concerning the prevalence of food poisoning in the United States are difficult to obtain since the disease is rarely made reportable. Food poisoning is a reportable disease in nine states, i. e., Georgia, Kansas, Maryland, Montana, New Mexico, Oklahoma, Washington, Wyoming and West Virginia. Botulism is now a reportable disease in 13 states, i. e., Colorado, Arizona, Idaho, Kansas, Maryland, New York, Minnesota, Oregon, Washington, California, West Virginia and Wyoming. In addition, ordinances of cities like Chicago require this disease to be reported.

FREQUENCY OF BOTULISM

Occasional outbreaks of botulism continue to be reported in the United States. The rarity of the disease, often stressed by various writers, has apparently never been questioned. The publicity usually attendant on outbreaks has been less in re-

*Read before the Wayne County Medical Society, November 9, 1926.

cent years, but it would appear to be far in excess if one considers comparatively the recorded morbidity and mortality.

There is, however, and perhaps rightly so, great importance placed on each outbreak because of its fatal sequence to those who consume the contaminated and toxic food. Likewise, the relation of the intoxication to our preserved food supply is always decidedly menacing, as this supply is rapidly becoming economically more important in American households.

Lewis[1], Jellinek[2], McCracken,[3] Geiger, Meyer and Dickson[4] and Geiger[5] have summarized the data available since 1899. It may be of interest again to summarize the data to date (1926), going back, however, to the extensive report of Geiger, Meyer and Dickson, which indicates a total of 91 single or group outbreaks reported in the United States and Canada. A total of 345 cases with 213 deaths, or a case mortality of 61.7, was recorded. Only 30 outbreaks of their collected series were proved bacteriologically or toxicologically.

Since the publication, in September, 1922, of the report by Geiger, Meyer and Dickson, it has been possible to collect data in the United States dealing with 56 additional outbreaks, 24 of which have been proved toxicologically. There is included, however, in this series for statistical purposes one outbreak, which occurred in Scotland in October, 1922, from commercially canned duck paste, in which there were eight cases an deight deaths. Of the 56 outbreaks concerning which information is now available, 21 occurred in 1922, 12 in 1923, eight in 1924, eight in 1925 and the remainder in previous years. A total of 159 cases with 124 deaths, or a case mortality of 78 per cent, has been recorded.

If there is taken an eight-year period, 1918 to 1925, inclusive, an average of approximately 13 outbreaks has occurred annually. This probably represents the average yearly occurrence of botulism in the United States. The number of outbreaks occurring in 1922 (21) was the largest number reported in any one year. It must be recognized, however, that food may be somewhat detoxified by heating or warming up just before being consumed, and the strength of the toxin so reduced that the mild cases resulting may be overlooked or not diagnosed as botulism.

To summarize, there have been reported in the United States and Canada from 1899 to date, and including one outbreak from England, 147 outbreaks, or a total of 504 cases with 337 deaths, giving a case mortality of 67 per cent; 54 outbreaks have been proved toxicologically and bacteriologically.

FOOD INVOLVED

The preserved food products concerned, so far as known, were: vegetables, in 38 outbreaks; meat, four; fish, four; fruits, one; pickles, one, and the remainder, unknown. In 36 outbreaks the food was home canned and in 11, commercially canned. The variety and type of preservation of causative food in these outbreaks is given in the accompanying table. Of the remainder the causative foods are unknown, with the exception of an outbreak that occurred at Longmount, Colo. Two foods were suspected, commercially canned spinach and home canned corn. A careful and critical survey of the epidemiologic evidence points to home canned corn, rather than to the commercially canned spinach. There are reported, however, conflicting toxicologic findings in a recovered empty can of spinach of the pack suspected. In addition, data are available as to five outbreaks in chickens, but only one was proved toxicologically. The causative foods were home canned asparagus, home canned corn (two), home canned string beans and home canned meat.

TYPE OF TOXIN

Epidemiologically, the symptoms of botulism are due to preformed toxins in the food when the food is ingested. The type of toxin present has an important bearing, should treatment with antitoxin be instituted. In the outbreaks included in this series, information is available as to type in 24. Of these, 20 were type A and four were type B.

GEOGRAPHIC DISTRIBUTION

Forty-six outbreaks occurred in the west, seven in the middle west, and three in the east. None were reported from the southern states.

Of the seven outbreaks reported in the middle west, in four the food was canned in the west.

There are several matters of interest; mainly, the proved involvement of foods (sardines, meat and peas) which heretofore have not been noted in the United States. These outbreaks are of prime importance, as they focused attention on these particular foods and their type and method of handling and preservation. Two of these outbreaks were due to sardines of a like brand, mixed with tomato sauce. The product was canned in the west. One

outbreak was due to commercially canned potted meat that was canned in the middle west. The other outbreak was attributed to commercially canned peas that were canned in the middle west. It is of interest to note that in the commercially canned peas and commercially canned potted meat, both canned in the middle west. the type of toxin demonstrated was type B.

The majority of the outbreaks have been due to underheated or underprocessed foods. It is fundamental that methods of canning must insure sufficient heat penetration and make allowance for altitude and the hydrogen-ion concentration of the product. Sanitation by the thorough cleansing, proper storage and the use of fresh products is primarily essential as a protection against botulinus spoilage.

FREQUENCY OF FOOD POISONING

A study of the mortality statistics regarding food poisoning reveals the interesting fact of a steady increase. The difficulties attendant on the classification as a cause of death indicate to the experienced investigator that these statistics at their best are inaccurate. It will be seen from the recorded data used in this study that physicians and others have made imperfect, inconclusive and incorrect returns as to the cause of death, as indicated by subsequent necropsies. Consequently, we have no comparable data as to the real incidence of food poisoning in the United States, and it is decidedly necessary that we approach any compilation with caution. Since 1910 and including 1923 there have been reported in the United States Census Bureau, 9,981 deaths attributed to poisoning by food. The increase has been gradual but steady, and should be regarded with some degree of apprehension. For instance, in 1910 there were reported 157 deaths, while in 1920 there were 957, a rate of 10.9 per million; in 1921, 927, a rate of 10.5; in 1922, 810, a rate of 8.7, and in 1923, 928, a rate of 9.6.

Geiger, in the Journal of the American Medical Association, October 13, 1923, reported 749 outbreaks in the United States, involving 5,210 persons with 399 deaths between 1910 and 1922, inclusive, with a percentage case mortality of 7.5. Additional data are available of 239 outbreaks for 1923 and 1924, inclusive, involving 1,679 cases with 102 deaths, a percentage case mortality of approximately 6.1.

To summarize, data are available for the periods 1910 to 1924, inclusive; 988 outbreaks, involving 6.889 cases with 501 deaths, a percentage case mortality of approximately 7.3. If this percentage case mortality is accurate, then we have had approximately 12,500 cases of food poisoning in 1920, and approximately 133,450 cases for the period of 1910-1923, inclusive. However, it will be shown later that the percentage case mortality of our data can be materially reduced when we analyze the results of necropsies and separate the outbreaks due to botulinus intoxications.

For instance, in the records of 988 reported outbreaks under consideration, we have reports of 59 outbreaks of botulism, with 232 persons made ill. Of this number, 182 died, a percentage case mortality of 78. If we separated this group of cases from those of general food poisoning, we should have of the latter in this series a percentage case mortality of 4.4 instead of 7.3.

In addition, there are records of 62 necropsies at which the previous cause of death has been given usually as "ptomain poisoning," which diagnosis has to be subsequently changed. Likewise, there can be included data regarding 15 instances with 29 deaths of metallic poisoning, due, as the evidence indicates, to murder, suicide or accidental causes. Eliminating these erroneously recorded deaths (91) from the number previously given as having been due to food poisoning, we have a further reduction of the percentage case mortality from 4.4 to 3.3.

From experience in investigations completed during the past year, this case mortality rate in general food poisoning is obviously too high. This opinion is further substantiated by the results shown above of the comparatively few necropsies performed which indicate that food poisoning or "ptomain poisoning" is given not infrequency in error, as a cause of death.

Mayer[6] states that in Germany in 48 outbreaks attributed to B. enteritidis and in 77 outbreaks attributed to B. paratyphosus B or B. suipestifer, there were approximately 4,000 cases with 40 deaths, a percentage case mortality of one. Savage[7] states that in 112 outbreaks in England, involving 6,190 cases with 94 deaths, the percentage case mortality was 1.5. A careful search of our records was made, and only those outbreaks were considered in which either the epidemiologic or the laboratory evidence was fairly conclusive that the paratyphoid group was the contaminating organism of the causative food. Of these, in the 988 outbreaks studied. there are 81 outbreaks involving 3,383 persons with 11 deaths, a percentage case

mortality of 0.3. Likewise, data are found in recent literature relative to 21 additional outbreaks, involving 2,266 cases with one death.

Therefore, if one should determine the average case mortality of the German statistics, one; British, 1.5, and that of our own selected outbreaks, 0.3, we have a rate of one minus, which probably is representative of general food poisoning. Contrasting this rate with that of the outbreaks in this series due to botulinus intoxications, 78, one can readily note that there is need for a statistical regrouping and classification, probably on this basis alone, of the mortality of food poisoning, without taking into consideration the deaths caused by the ingestion of poisonous fungi, etc.

DISTRIBUTION OF THE SPORE OF B. BOTULINUS

Meyer and Geiger[8] investigated soils in which certain vegetables had been grown which, after canning, had caused outbreaks of botulism in humans. Cultures of these soils were toxic and the toxin thus formed was neurtalized by the corresponding type of botulinous antitoxin. They suggested that possibly the manuring of the soil might be the medium of the pollution of the soil with the spore of B. botulinus. However, Meyer and his associates[9] stated that in over 2,000 samples of soil and other agricultural products in the United States and in other samples from Canada, Alaska, Belgium, Denmark, England, the Netherlands, Switzerland, Hawaiian Islands and China, that were examined, it was demonstrated that the spores of B. botulinus were widely distributed in nature. There is recent evidence that Alaskan soils which are acid in reaction are singularly free from the spores, at least in certain areas. The spore was found in greatest abundance in uncultivated mountain soils and to the least extent in soils that had been intensively cultivated. Geiger[10] and Geiger and Benson[11] have demonstrated an intensive distribution in certain localities, particularly in the state of Washington. It is of special interest that they were able to demonstrate experimentally that both type A and type B, B. botulinus, may exist in the same soil sample, type A predominating in cultures when vegetables such as corn and string beans were planted together with the soil in the culture medium.

In this connection, in a recent investigation of the geographic area mentioned by Geiger and Benson, there was strong evidence that intensive animal manuring, or soil pollution with animal excreta over a period of years, may affect the type demonstrable in cultures of the soil with the greater likelihood that it would be type B. For instance, it was ascertained that the surface pollution with animal excreta had been constant for many years because of the location of the area examined and its use as a pasture, particularly by horses and cattle. Cultures of soils from this limited area contained toxin of type B, B. botulinus, while cultures of soils from other areas five miles away, and usually from soils of the state as a whole, yielded predominantly type A, B. botulinus.

It is frequently possible to demonstrate the spore of B. botulinus in soil cultures in which vegetables have been grown when the vegetables, after canning, caused outbreaks of the disease in humans. Such results indicate, and the experimental evidence strongly supports the statement, that the spore of B. botulinus is usually present where food supplies are grown and the resulting poisoning outbreaks may be in direct ratio to the distribution and the method of the canning of the food.

CAUSATIVE AGENT IN BOTULISM

Orr[12], and Edmonson, Giltner and Thom[13] found that guinea pigs succumbed to botulism when fed large numbers of toxin-free spores. Coleman and Meyer [14] assert that toxin-free spores may under certain conditions germinate and the vegetative forms multiply and liberate toxin in animals. Geiger[15] states that there is a vast difference in results depending on whether toxin-free spores are fed or inoculated into guinea pigs, even when such spores have been saturated with specific antitoxin and have been incubated. This difference may be quantitative in the case of feeding and on subcutaneous inoculations of the spores. Finally, such spores when fed may remain dormant in the animal body and be recovered from various organs, on autopsy, without the animals showing any previous symptoms of the disease. Geiger, Meyer and Dickson[4] state, however, that the epidemiologic data of the numerous carefully investigated outbreaks of botulism, indicate that the intoxication has always been preceded by the ingestion of toxin-containing preserved food. Furthermore, these writers call attention to four outbreaks in which the toxic food was boiled and later consumed without any illness occurring. Recently Hervey[16] confirmed these observations. Epidemiologically, there is every indication that a true

botulism infection never occurs in the human being and the symptoms are due to performed toxins in the food when the food is ingested. However, Geiger[17] reported that certain experiments indicate the possibility of the absorption of the toxin from mucous surfaces other than the gastro-intestinal tract and from fresh wounds.

CAUSATIVE AGENT IN FOOD POISONING PROBABLY DUE TO THE PARATYPHOID GROUP

The short incubation period in food poisoning of this type, the early recovery of the persons ill, the low mortality rate, the absence of continued temperatures, or other evidence of infection especially when the food ingested contains living organisms of the paratyphoid group, are suggestive evidence that these outbreaks are also intoxications. Experimentally, the production of poisonous filterable substances by the various strains of the paratyphoid-enteritidis group is extremely variable. Poisonous filterable substances are rarely produced in broth cultures in as short a period as six hours, but cultures may retain the toxicity for as long an incubation period as 10 days. It must be appreciated that such results are obtained only on intraperitoneal inoculation of the animals and that feeding experiments with filtrates and cultures are invariably negative. It has been demonstrated that the poisonous filterable substances produced are occasionally thermostabile since they resist boiling at 100° C. for ten-minute periods. However, it is significant that there are no records of such poisonous filterable substances being demonstrated in outbreaks of food poisoning, when the organisms of the paratyphoid-enteritidis group have been isolated from such foods.

SYMPTOMS

In the majority of cases of botulism, the incubation period is from 24 to 48 hours, though the onset may occur earlier or may be delayed. The earliest onset in the recent outbreaks investigated was 16 hours and the longest 48. It is interesting to note that in one outbreak the amount of toxic food consumed was practically the same, yet there was a difference of 24 hours in the onset of the cases. Gastro-intestinal symptoms are not as rare as is sometimes thought, but are delayed much longer than those observed in outbreaks due to the type of food poisoning caused by the paratyphoid group. In the latter type of food poisoning the symptoms usually manifest themselves in about two to four hours. The characteristic evidences of the disease recorded in botulism are quoted in their usual order as follows: delayed onset, marked muscular weakness, gastro-intestinal symptoms, disturbances of vision with diplopia and blepharoptosis, loss of ability to swallow and talk, constipation, rapid pulse and subnormal temperature, rarely any pain, death from respiratory failure and a high mortality rate.

As a contrast, we have in the outbreaks due to the paratyphoid group, such characteristic symptoms as follows: sudden onset, nausea, vomiting, abdominal pain, prostration, diarrhea, rise of temperature, and a mortality from 0 to 1 per cent. Therefore, the difference, clinically between these two types of food poisoning is distinct and should be easily recognized.

The explanation of the symptoms in cases of botulism has been under discussion for several years, and recently Schubel[18], Dickson and Shevky[19,20], and Edmunds and Long[21] have published experimental data which are very interesting. Dickson and Shevky state that: "In botulinus intoxications in cats, dogs and rabbits there is a specific effect upon the portions of the autonomic nervous system which Gaskell described as the bulbo-sacral and prosomatic outflow of connector fiber respectively, which results in a blocking of the nerve impulses of those nerves . . . The experiments show, however, that the lesions in these portions of the nervous system are not of central distinction, but are peripheral."

These authors further conclude that: "In addition to the effect upon the fibers of the parasympathetic nervous system, the toxin of clostridium botulinus, types A and B, exerts an influence upon the endings of the motor fibers of the voluntary nervous system which leads to a marked susceptibility to fatigue. There is no effect upon the sensory fibers of the peripheral nerves. The muscle cells of the smooth and striated muscles are not affected."

Edmunds and Long state that: "All the truly characteristic symptoms, however, can be explained by the peripheral motor paralysis. The increasing weakness in the legs, the relaxation of the abdominal wall, the early change in the respiration due to the failure of the nerve endings in the respiratory muscles."

Based on the above findings, Edmunds and Long, recommend artificial respiration and the careful administration of physos-

tigmin in treatment. Geiger[15], however, states that "immobilization and quiet are indicated by the best means available. It is almost unnecessary to call attention to those familiar with the disease in animals to the often observed fact that the merest roughing of the inoculated animal after the disease is manifest, hastens materially the outcome." This clinical observation seems amply supported by Dickson and Shevky[20] in their explanation of the nerve factors involved in the production of many of the early symptoms noted in botulism. They make the definite statement that "All the phenomena may be explained on the basis of susceptibility to fatigue in the nerve endings of the motor fibers which supply the skeletal muscles, etc."

To the above measures suggested in the treatment of botulism must primarily be added the use of the specific types of antitoxin. As there seems to be some fixation of the toxin in the body and probably no increase after the poisonous food has been ingested, early administration of the antitoxin is desirable. This is very difficult of application, as usually the disease is not recognized within 48 hours after the food has been consumed and this is not unlikely the time limit of the efficiency of the antitoxin. In this connection it is well to mention that type A is by far the most predominant type demonstrable as causing the outbreaks in the United States. Type B is exceedingly rare as a cause of the disease in humans.

SPOILAGE

In the majority of outbreaks of botulism, the preserved foods responsible have been noted to be visibly spoiled. This spoilage may be a relative matter, as the containers can be normal in appearance and the disintegration of the contents so slight that no odor or taste is detected. Spoilage as to odor and appearance is, therefore, a decidedly doubtful criterion in botulism.

In the 56 outbreaks of botulism recorded in this study, information as to spoilage is available in 41. Eighteen of the foods implicated were stated to be normal in odor and taste and there was nothing unusual in the appearance of the container. In the remainder, 23, the preserved food and its containers appeared abnormal, though it was tasted and served as food.

Schoenholz, Esty and Meyer[22], in an extensive piece of work with canned foods, artificially contaminated with spores of B. botulinus, report that under the conditions of the experiment toxin formation and spoilage were constant in corn, peas, salmon, sweet potatoes and pumpkin; irregular in asparagus, beets, ripe olives, spinach, string beans, evaporated milk, red and green peppers. Toxin without visible spoilage was moderately produced only after prolonged incubation in acid fruits as apricots, cherries, peaches, plums, raspberries, tomatoes and sauer kraut, and then in exceptional cases only. Spoilage is, therefore, a doubtful criterion in botulism and as Geiger[23] has pointed out, this is true also in outbreaks of food poisoning due to the paratyphoid group.

FOOD SUPPLIES

When the type of food poisoning is recognized as botulism, always suspect preserved foods and meat products, such as sausages. In the type of food poisoning due to the paratyphoid group, always suspect freshly cooked or "warmed over" food, especially if there has been some period of incubation.

LABORATORY PROCEDURES IN BOTULISM

In outbreaks of botulism, the suspected food is tested for the presence of toxin by animal inoculation using mice, guinea pigs or rabbits. Tests are also made for type by neutralization with specific antitoxin. Cultures of the food to determine the presence of spores can be made, but it is cautioned that toxin must be demonstrated originally to prove absolutely the food as the causative factor.

It has been suggested by Meyer and Geiger[24] that stools of clinical cases be examined for the presence of B. botulinus. This has also been advocated by Hervey[16]. Tanner and Dack have published positive findings of B. botulinus in two out of 10 samples of stools of normal persons. The value of these findings, however, has been somewhat counteracted by the data of Geiger, Dickson and Meyer[4], who state: "That the 50 stool specimens of people who had ingested raw vegetables and fruits purchased in the open market proved negative for B. botulinus, although repeated examinations of the fruits and vegetables these people ate had shown the presence of B. botulinus.

AUTOPSIES

Dubovsky and Meyer[26] stated that in four cases studied B. botulinus, types B and A, were found in the intestinal contents of the two cases, in the intestinal wall itself, in one case, and from the liver in one case. Recently Geiger isolated B. botulinus, type A, from the stomach wall of a case dying of botulism but not from

the stomach contents. Neither the supernatant liquid from the macerated stomach wall nor the stomach contents was originally toxic.

Wilbur and Ophuls[27], Armstrong, Story and Scott[28], and Geiger, Meyer and Dickson[4], discussing the histologic changes, found in the cases of botulism noted particularly a characteristic type of thrombus formation in the vessels of the brain. Dickson[29], however, states that thrombi cannot be considered pathognomonic of botulism. In this connection, Geiger made an investigation of several cases of illness occurring recently in Chicago. On autopsy of one person that died, the anatomical findings and subsequent microscopical examination revealed thrombosis in the brain and other tissue, and a diagnosis of botulism was suggested. It was later proved that these cases were not botulism.

It has been interesting to note that, occasionally, there is in outbreaks of botulism the history that one person or more after consuming the poisonous food, did not become ill. A search of the records reveals that in 12 outbreaks there were 29 people who supposedly ate the toxic food and were not affected. Aside from the possible mistake of the records because usually the morbidity incidence in outbreaks is 100 per cent, several explanations have been offered for this phenomenon, namely, either there may be a greater concentration of toxin in some parts of the preserved food in the container than in others, or there may be some immunity to the intoxication, or perhaps only one can of several that were served, was toxic.

LABORATORY PROCEDURES, FOOD POISONING, DUE TO PARATYPHOID GROUP

In outbreaks of food poisoning due to the contamination of the food with the organisms of the paratyphoid group, every effort should be made to demonstrate the presence of filterable toxic substances in the causative food. In any event, bacteriologic examination of the food and excreta of the persons ill should be made. It is desired to point out that the stools should be examined as early as possible, as negative results will probably be obtained if examinations are not made within 48 hours after the ingestion of the food.

It has been suggested that tests be made of the blood sera of persons ill in outbreaks of food poisoning due to the paratyphoid groups for the presence of agglutinins. The results so far obtained are inconclusive and of doubtful value, because of the many contributory and dependent factors in this test, such as previous vaccination with triple typhoid vaccine, the negative bacteriologic findings of a specific organism in the suspected food, the comparatively short duration of illness, the coagglutinins demonstrable among the members of the paratyphoid group and the absence of definite information as to such reaction in the normal individual.

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SOME ASPECTS OF OBSTETRICAL CARE*

R. S. SIDDALL, M. D.,
(From the Obstetrical Department, Henry Ford Hospital.)

A review of the history of obstetrics shows that no single great advance has been made since the discovery of the cause of puerperal fever by Semmelweiss and the introduction of anesthesia by Simpson. Nevertheless, the period since that time, or the present period, has been marked by numerous minor improvements in technic,

*Read before the St. Clair County Medical Society, November 4, 1926.

which have resulted in great reductions in obstetrical mortality and morbidity. Yet, one in practice is frequently reminded that perfection has not been attained. As a result, we have been interested for some time in refinements of methods and have made certain clinical observations and experiments, some examples of which may be considered worthy of mention.

PRENATAL CARE

Without going at length into the subject of prenatal care, I should like to mention several interesting points. We have abandoned prenatal efforts at preparation of the nipples for nursing. Since equally good results are reported to be obtained by hardening solutions or by softening, oleaginous substances, it was concluded that natural processes were alone sufficient, and this has proved to be the case in actual practice.

Diet during pregnancy (with rare exceptions as in diabetes) should not be greatly restricted in quantity or quality. The growing fetus needs a well balanced diet, so to speak, and will obtain the food essentials, even at the expense of the maternal tissues, if necessary. Perhaps, at some risk to the maternal welfare, the markedly restricted Prochownick diet will result in slightly smaller babies on the average,—due to less body fat and fluids,—but with no practical reduction in the size of the skulls and other bony structures, and has now been abandoned as useless, even in cases of contracted pelvis. There is no sound reason for the total elimination of proteins, even in the presence of toxemia. Harding and VanWyck have fed toxemia patients large quantities of proteins with apparently no ill result. As a matter of fact, the usually employed milk diet has a high protein content. On the other hand, there does seem to be good reason for limitation of the sodium chloride intake in toxemia, since the edema is probably associated with salt retention.

W. A. Yoakam, formerly of our staff, has definitely shown that the administration of iodine during pregnancy, (in this section at least), will greatly reduce the incidence of fetal enlargement of the thyroid gland. He observed no ill effects on the mother, even when one of the several forms of goitre was present. Ordinarily iodine salt is usually satisfactory, although occasionally larger doses in the form of sodium or potassium iodide are required.

MANAGEMENT OF LABOR

In the management of labor, we are inclined toward the conservative side and to this attitude largely ascribe our gross fetal mortality of only 3.77 per cent for babies weighing 1500 grams (approximately 3¼ lbs. or over and gross maternal mortality of less than one in 500. In most instances, patients are better off for analgesia during the first stage by scopolamine and opiates or by the Gwathmey rectal ether method, although neither procedure is entirely devoid of danger for the child. Occipitoposterior presentations, when treated conservactively, make necessary a few more low forceps operations than do anterior positions, but otherwise, in our experience, seldom cause trouble.

After several series of experiments. which have been previously reported, it became evident that one of the ordinary skin antiseptics would give better results than the old scrub and flush perineal preparation. At least, the danger of washing bacteria into the vagina could be obviated. We have found diluted tincture of iodine or two percent mercurochrome to be equally efficient, and either can be applied quickly and easily just before delivery. This simple preparation is also used for vaginal examinations with good results.

For several years, we have been repairing relaxed outlets immediately following delivery with surprising ease. Several old complete tears and a recto-vaginal fistula have been closed with ideal results. The advantage to the patient is obvious, and the procedure ordinarily prolongs anesthesia for only a few minutes.

POST-PARTUM CARE

Following delivery, patients may be given full diet in response to the hunger which is usually present. Liquid, or other limited diet, seems to be in direct violation of the natural demands, when it is remembered that labor entails more or less physical exhaustion, for the recovery from which food (as well as rest) is required. We have never seen any but good results from such a regime.

In 1916, E. D. Plass showed that the usual frequent flushings of perineal repairs with antiseptic solutions were not only unnecessary, but were even harmful. On the basis of his observations, we confine perineal after-care to that necessary for personal cleanliness. If the minimum amount of cat-gut for approximation of the tissue is used (and this is an important point), healing *per primum* takes place almost without exception.

It is unnecessary to mention further examples of our obstetrical care (some de-

parting considerably from the usual routine) in order to indicate that there is still the possibility of refinements of technic which would be for the comfort and welfare of obstetrical patients. From our experience, we are convinced that thoughtful attention to details of treatment gives worthwhile results.

TREATMENT OF CRANIAL AND INTRACRANIAL INJURIES*

MAX MINOR PEET, M. D.
ANN ARBOR, MICHIGAN*

While we frequently speak of the dangers and the mortality of skull fractures, what we are really considering in most cases is not the skull but its contents,—in other words, the skull fracture is often a mere incident, indicating in a measure the amount of force applied but of itself quite innocuous. It is the possible intracranial damage, either immediate or delayed, which chiefly concerns us. And remember it is by no means uncommon to have a fatal trauma to the brain without any break in the continuity of its bony covering. The opposite is even more frequently observed, a simple fracture of the skull without symptoms and without demonstrable intracranial damage. But here we are lead back to our first statement since this type of case has no mortality and requires no special kind of treatment.

Although by some considered obsolete, the old classification of skull fractures,—simple linear, depressed and compound, has much to recommend it when considering the treatment of cranial fractures per se, without regard for possible coincident intercranial damage. A fourth group, the basal fractures, scarcely fitting the above classification since it is based on anatomical position rather than on the type of fracture, is considered by many clinicians as almost a distinct entity. This is probably due to the high mortality which we formerly associated with any fracture through the base.

Linear fractures alone can be considered from the purely fracture standpoint since all other types of necessity imply either immediate or potential brain injury or infection. And from the strictly fracture standpoint, linear fractures require no treatment. We are chiefly interested in their detection as an indication of a rather severe blow to the head and for the possible intracranial complications which may result. Casting aside for the present the possible coincident brain damage, simple linear fractures require surgical treatment for only one complication: intracranial hemorrhage. This is usually from the middle meningeal artery, more rarely from the superior longitudinal or lateral sinuses, and only occasionally from a large posterior emissary. The symptoms from hemorrhage are usually delayed since the bleeding is practically always extradural. So classical is the typical train of events that no one should fail to recognize that the middle meningeal artery has been torn. Usually after a quiescent period of several hours during which the patient may have returned to consciousness, the pulse and respiration rates decrease, the patient, if previously conscious, becomes drowsy, stuporous and finally, unless operated, in coma, and local irritative or paralytic phenomena develop. These manifest themselves by epileptiform movements of either mild or severe grade on the opposite side of the body. The face only may be involved but as a rule the arm and frequently the leg show Jacksonian movements. If the pressure increases very rapidly, and particularly when considerable general brain injury is present, epileptiform attacks may be wanting and the first indication of localized pressure is a weakness or paralysis of face or arm or both. The hand or arm may alone be involved for two or three hours or more but unless the process is checked, the entire side of the body will usually be involved before death supervenes. If the lesion is on the left side in right-handed individuals, the first symptom of localizing nature may be difficulty in speech due to pressure on the motor speech center.

When symptoms indicative of middle meningeal hemorrhage develop, operation should be performed immediately. The bleeding point is usually found beneath the lower parietal or the temporal bones, but occasionally the artery is torn at its exit from the foramen spinosum. If the former, simple ligation with evacuation of the clot is easily performed. The latter is somewhat more difficult to handle as the dura must be lifted from the middle fossa and the exit of the artery actually observed. By the use of a lighted retractor and continuous suction adequate exposure is greatly facilitated. The artery may be ligated, but we have found it is much simpler and equally efficacious to plug the foramen spinosum with a small wooden peg.

*Read at the Annual Meeting of the State Medical Society Lansing, 1926.

*Department of Surgery, University of Michigan.

This being sterile can be left in the skull without fear of any subsequent complication.

The recognition of hemorrhage from the large sinuses may offer greater difficulties. In the cases of superior longitudinal sinus hemorrhage personally observed, both legs were affected. The reflexes were greatly exaggerated and double Babinski phenomena were present. In the more rare cases of lateral sinus injury and in two cases of hemorrhage from a large posterior temporal emissary, personally operated, the symptoms suggested middle meningeal hemorrhage, the fracture line, however, indicating the more posterior position of the probable lesion. Bleeding from the sinus may be controlled by the application of a muscle graft or by ligation.

We believe that every depressed fracture should be operated. Frequently with a depressed fracture we have immediate local damage plus a general increased intracranial pressure. The extent of the local damage cannot be determined by the present symptoms and there is little question but that the actual extent of the damage may be greatly increased by the continued pressure of the fragments. Therefore, immediate operation, providing the patient is not in shock, is always indicated. Even though no symptoms of local pressure or of increased intracranial pressure are present, a depressed fracture should be elevated, not only for cosmetic purposes but to prevent possible later sequelae such as epilepsy. Frequently under a depressed fracture will be found a small bloodclot with laceration of the brain substance. If the clot is not removed and the lacerated cortex thoroughly irrigated, subsequent cyst formation with either local or general symptoms may develop.

We believe that the bone should be saved in all cases where infection is not potentially present and it is frequently possible to reconstruct the calvarium even in the most extensive comminuted fractures. We believe that every case of compound fracture should be operated, no matter how limited the fracture may be. Even in the simple compound linear fractures we frequently find that hair has been forced into the cleft at the moment of impact and the possibilities for meningitis or at least osteomyelitis are excellent. The treatment as developed by Cushing during the war has proven highly satisfactory and consists of debridement of all possible infected and contused tissues. This means an elliptical excision of the lacerated scalp, the removal of contaminated bone fragments or of the fracture line, the excision of the torn dura and the thorough irrigation of the lacerated brain cortex. We do not actually excise brain tissue but by irrigation and suction all broken down tissue can be removed. In bullet wounds of the brain it has been found desirable to aspirate throughout the track of the bullet. This removal of lacerated brain tissue prevents subsequent softening of the adjacent brain as well as removing much devitalized and potentially infected tissue. Bleeding points in the dura can be ligated and hemorrhage from the brain controlled either by the application of silver clips or of muscle grafts. The troublesome bleeding from pachyonian bodies is easily controlled by the application of thin muscle grafts. Under no circumstances should packs or other drainage material be left in place. The scalp should be closed tightly. If the laceration was so extensive that approximation of the scalp edges over the debrided area was impossible, a flap of scalp should be turned from an adjacent region so that the actual defect in the skull and dura is entirely closed. Later the denuded area left by the turning of the scalp flap may be skingrafted, but immediate closure of the intracranial wound is imperative.

In compound fractures of the frontal region involving the frontal sinuses or cribriform plate, operation is indicated even though the case appears hopeless. The one exception to the rule that no packs should be introduced is made in these cases. If on exploring the frontal region the fracture is found to extend through the cribriform plate and there is a superimposed tear in the dura, we have made it a practice to place a strip of iodoform wick between the cribiform and the dura. This allows the brain to become firmly adherent to the dura before infection may reach the subarachnoid space through the cribiform. Once the brain and dura are firmly adherent, the chances for meningitis are materially reduced. If, as frequently happens, the frontal sinuses have been fractured and driven into the brain, we have carefully removed all fragments of bone, irrigated away the lacerated brain tissues and removed the remaining walls of the sinuses so that the dura and scalp will come in immediate contact. If the supraorbital ridge is preserved, there is little deformity resulting from this operation and the possibilities of meningitis are largely eradicated.

Basal fractures have for long been of

great concern to the surgeon because there is such a high immediate mortality and in those patients who survive temporarily, meningitis frequently develops. Outside of the immediate mortality which is undoubtedly due to extensive brain damage, basalar fractures should be really considered from the standpoint of the compound. Frequently the fracture extends through the petrous portion of the temporal bone with a coincidental rupture of the tympanic membrane and blood or cerebral fluid or both flow from the external ear. We have developed a definite routine in treating this fracture because essentially it is compound and the results have been very gratifying. The external canal is thoroughly cleansed with cotton applicators down to the tympanic membrane. Tincture of iodine 3½ per cent is then poured into the ear so that the canal is completely filled and the external ear sterilized as well. The head is then rotated, allowing the iodine to run from the ear and sterile dressings are applied. If these become displaced, the canal is again wiped out with iodine and the sterile dressings replaced. By following this technic we have had no cases of meningitis develop where the technic was rigorously applied. In the basalar fractures through the cribriform plate, which are also essentially compound, with a free discharge of cerebral fluid from the nose, we believe that a frontal operation should be performed and the dura separated from the cribriform and a iodoform wick placed between the two.

Our chief concern then from the purely fracture standpoint in both compound and basalar fractures is the possibility of infection and every effort should be made to immediately prevent its occurrence.

We now come to the treatment of intracranial damage which may or may not be associated with fracture of the skull. Intracanial injuries may be divided into two groups: those produced by pressure and those due to laceration of contusion of the brain substance. Pressure may be due to either hemorrhage or edema. Hemorrhage is usually due to rupture of the middle meningeal artery and the symptoms point to a localized lesion requiring operation, although there may be rather extensive hemorrhage from laceration of pial vessels. The usual symptoms, however, of brain damage are due to a more or less extensive edema of the brain. The usual treatment for increased intracranial pressure has been a subtemporal decompression either with or without drainage of the middle fossa but since the work of Weed and his collaborators, it has been found that introduction of hypertonic solutions intravenously will reduce intracranial pressure far more effectively than can a subtemporal decompression. We, therefore, no longer operate for generalized intracranial pressure of traumatic origin. In its stead we use hypertonic solutions, either Ringer's or glucose. Simple sodium chloride in a 35 per cent solution may be used in emergency but at least from experiments, it has certain drawbacks. We, therefore, recommend the use of saturated Ringer's solution or a 50 per cent solution of chemically pure glucose. The Ringer solution has a more immediate but much more transitory effect and in the usual case of increased intracranial pressure of traumatic origin, glucose will be found the most efficient therapeutic agent at our disposal. Immediately upon admission of an accident case with symptoms indicative of increased intracranial pressure, the patient is given 100 c.c. of 50 per cent glucose intravenously. Lumbar puncture may be done while the glucose is being prepared and at times this simple procedure is all that is required. We believe there is no danger associated with lumbar puncture in these cases and it may be performed repeatedly as indicated. Especially in basalar fractures with a very bloody cerebral fluid has lumbar puncture given gratifying results. The fluid is allowed to escape freely until it comes drop by drop, no matter how much fluid is actually collected. The patient is then given hypertonic glucose and placed in a semi-Fowler position. Even though there may be shock present, glucose is indicated as it not only combats the increased intracranial pressure but it is of value in the systemic condition known as "shock." It seems rather surprising at times to find marked increased intracranial pressure with a very subnormal arterial pressure but this combination is by no means rare. The hypertonic glucose solution by its osmotic action takes up the cerebral fluid from the ventricles and the subaracnoid space and the edema within the brain tissue itself. The results at times seem almost miraculous. A patient in deep coma with Cheyene-Stokes or deep stertorious breathing with a very slow pulse and respiratory rate may become sufficiently conscious by the tim ethe glucose injection has been finished to respond to questions and obey simple commands. We have observed this many times and the results

have been so striking and immediate that it cannot be a coincidence.

Hypertonic glucose will not save every patient. It will not bring every patient back to consciousness from deep coma but we believe it will materially reduce the mortality and save extensive brain damage if used in every case. Of course, patients are seen with massive brain injury in which the skull is extensively crushed and in which no therapeutic measure will be of any avail, but in many apparently hopeless cases, the glucose has been a life-saver. As proof that it is more efficient than subtemporal decompression, we have given hypertonic glucose after a subtemporal decompression had been performed and there was immediate change for the better, though the operative procedure had been of no avail. Glucose can be given repeatedly but it is seldom necessary to give a second intravenous injection within five or six hours.

In summary we may state that linear fractures in themselves do not require operation; that all depressed and compound fractures of the vault should be operated; that meningitis may be prevented in basalar fractures by thorough cleansing of the auditory canal in those cases of involvement of the petrous portion of the temporal bone and by an operative procedure in cases of fracture through the cribiform plate. For the treatment of localized pressure most commonly of middle meninggeal origin, operation is distinctly indicated. Operation is not indicated for the relief of general intracranial pressure. Here the intravenous introduction of hypertonic Ringer's solution or of 50 per cent glucose preceded by lumbar puncture has proven the most efficient means at our disposal.

TRAUMATIC SHOCK

H. E. RANDALL, M. D., F. A. C. S.
FLINT, MICHIGAN

Traumatic shock may be defined as a condition of lowered vitality following injury characterized by low blood pressure lowered metabolism and a reduced blood volume.

It was a common observation that the seriously wounded soldier never had shell shock, while it was the solder with a trivial wound or none at all who suffered from shell shock.

Traumatic shock may appear at once or after a few hours. The late cases are usually those who have had a crushed extremity and shock supervenes usually half an hour or so after the removal of the tourniquet.

The treatment of shock until the last war has been bewildering with the multitude of measures, none of which were effective and undoubtedly did more harm than good.

Various preparations of strychnin digitalis, nitriglycerin, camphorated oil, alcohol, whisky, adrenalin and ether were injected without avail.

The American Army Shock commission arrived at the conclusion that the treatment by morphine, heat and fluids gave the best results, and called attention to the fact that it was the wounded soldier exposed to the cold who was the victim of severe shock.

It seems to me that the various theories devised on which treatment was based previous to the report of the American Shock Commission are now only of historical interest. The Splanchnic theory of engorgement wsa one although no surgeon had ever seen engorgement in the abdomen in shock. The Histamin theory was brought forth to explain shock after removal of tourniquet, but shock occurs after crushing of liver with no muscle injury. Fat embolism still hold forth as an explanation of shock in a few cases of sudden collapse. Henderson acapnia theory of lack of C. O. (carbon dioxide) with a complicated blood chemistry called for a treatment of shock by administering C. O. In other words, by adding more ashes to a fire you can make it burn more briskly. The heart failure was blamed for shock but it has been proven many times that it will recover its strength if given proper food fluid for work. Then there was and is the theory of vaso-motor paralysis disproved by cutting the nerves of one ear of a rabbit, producing shock and observing that in the operated ear the vessels wil be dilated while on the ear with intact nerves supply there is a spasm contraction and not a dilation.

Dr. George W. Crile, the master surgeon and thinker has been a consistent persisting student of shock. Crile starting with pneumatic suit to overcome the low blood pressure always present in shock, proceeded then to a microscopical study of nervous cells in shock, and has given us the enhaustion cell theory of shock. Crile showed the typical cell changes in brain. liver and adrenal, and this was the limit of our knowledge of shock until two or three years ago. You may recall Dr. Crile comment on the prevention of shock in animals

by use of diathermy of liver, in his address last year.

Henderson study of marathon runners who collapsed on track disclosed a lowering of the sugar content of the blood, and Thalhimer studies of the use of glucose in the toxemias of pregnancy, lead Fisher of Milwaukee to use glucose in post-operative conditions and suggested its use in traumatic shock, and the results have been brilliant and dramatic as that of blood transfusion in severe hemorrhage.

The use of glucose in shock is based on the following facts: All animals are destroyers of energized compounds. It is the phenomena of metabolism that distinguishes living from lifeless matter. The energy of the sun is brought to man by way of the carbohydrates and their use as sugars. Entering the chlorophyl bodies of plants the kinetic energy of the sun is applied to the decomposition of carbondioxide and water and builds up carbohydrates. It is the oxidation or burning of these bodies that supply energy. In the intestines carbohydrates and sugar are absorbed and stored in liver as glygogen (estimated 10 oz.) a colloidal which by hydrolysis or the addition H. O. become blood sugar or glucose.

It has been pointed out that one-quarter of the entire volume of blood in the body is the requirement of the liver.

It may be said that a blood pressure below 100 following injury means shock. In the war commission study of shock there were 93 cases giving blood pressure readings as follows:

16 cases	40 - 50
14 cases	51 - 60
17 cases	61 - 70
26 cases	71 - 81
16 cases	81 - 90
14 cases	91 - 98

The pulse pressure had significances in prognosis.

Above 25 favorable. Below 25 unfavorable. Not practical because diastolic is very difficult to get accurately.

The British surgeon recommends a fluid for intravenious injection in shock of a 6 per cent gum arabic in 0.9 per cent nacl as possessing the same viscosity as the blood plasma and known to remain longer in the blood vessels tha nnormal salt solution.

It was with this in view that when Fisher recommended glucose in shock that we used a 25 per cent solution of glucose instead of a 10 per cent as recommended by him; and as the results have been so satisfactory we have had no occasion to change the following formula.

Glucose	75 grams.
Normal salt solution	300 c.c.
Insulin	35 units.

Solution of glucose given intravenously produces diureaus as well as glycosuria whereas glucose injected subcutaneously or by mouth produces neither condition and apparently has little effect in shock.

Glucose alone is not available in shock and the addition of insulin is needed, as aid in oxidation.

One unit of insulin is given for each gram of glucose and while we have in a few instances repeated the intravenous injection the third dose has never been given.

The following case is typical of its use at Hurley Hospital.

In a case of crushed pelvis, the patient who was in profound shock with a blood systolic pressure of 67 was given an intravenous by injection of glucose, 75 grain in normal solution 300 c.c. with 35 units of insulin and at the conclusion of the injection blood pressure was restored to 130.

These shock cases have uniformly responded to this treatment, so that during the last two years it has become a routine treatment for traumatic shock and for post-operative weakness when not due to internal hemorrhage.

SOME COMMENTS ON THE ADVANCE IN OTO-LARYNGOLOGY

HAROLD HAYS, M.D., F.A.C.S.
NEW YORK CITY

Within recent years, I have found it of more interest to my audiences to comment on the recent advances in our specialty, dwelling particularly on those factors which I personally have found of particular value, than to take up one special subject. To my mind, there is no specialty in the practice of medicine in which definite changes have taken place so rapidly. I am happy to say we are learning more and more how to treat patients by conservative means and are more wary about using the knife. The reason for this is obvious: too many operations have been performed in the past which, if they have not met with definite failure, at least have not given the results desired. For example, there was a time in the recent past when any deviation of the septum was considered sufficient cause for its resection. Not only is a deviated septum, to some extent, pres-

ent in 90 individuals out of 100 but, in most instances, such a deviation is but a contributing factor in a nasal obstruction.

In the random remarks which I am about to make, I shall dwell upon the most important additions to our work and the changes in diagnosis and treatment. In the realm of rhinology, first comes plastic surgery. Since the war particularly, the remaking of features and the correction of patent physical defects has become a specialty in itself. There are any number of plastic surgeons today who do excellent work and among them is one in your own state who holds an enviable position—Dr. Ferris Smith of Grand Rapids. On a recent visit, Dr. Defourmantel of Paris, France, had occasion to visit Grand Rapids and see some of Dr. Smith's work. He made the remark that he did the best work that he had seen in America. But plastic surgery should not stop with the remaking and remodeling of noses; nor should it stop with the changing of facial defects only. At present the plastic surgeon confines himself to changing the shape of the nose, remodeling ears and face lifting. The time is soon coming when he will no longer consider himself a rhino-laryngologist and will fit himself to do reparative work on any part of the body. One of my New York associates, long in our specialty, is abroad at the present time and is fitting himself for this kind of work. Dr. Seymour Oppenheimer has sent me a list of reconstructive operations which he has recently performed under the guidance of two great masters who were recently in our specialty. It may interest you to hear the types of operations he is called upon to perform. Among them are the usual facial plastic operations, including hare-lip and epithelial inlays after excision of the eye, and the following: tubular flare from the abdomen for burn of the arm, excision of ulcer of the back and skin readjustment, excision of leg ulcer and skin transplant; tubular flap transplant from abdomen for leg defect, cicatricial contraction of the hand with excision and skin graft; reduction of fatty limbs by fat excision; transplantation of abdominal fat to supraclavicular depression; excision of depressed scar of the face and fat transplant from abdomen, etc., etc. At first it seems amusing that a rhinologist should broaden his field to such an extent but when one thinks of the number of industrial injuries and deformities which take place each year, he will realize that there is much to be done by the man who makes this work a particular study. If Dr. Gillies can find this kind of work of value in England; if Dr. Defourmantel can find this kind of work of value in France; then Dr. Oppenheimer should find this kind of work much appreciated in America. It is time that we ceased calling the reputable plastic surgeon a beauty specialist; it is time that we dignified his calling even if, from now on, we have to call him a reconstruction surgeon.

The interpretation of conditions within the nose itself has assumed a different attitude during the past few years. As I previously stated, we are inclined to more conservatism. In the treatment of common colds, we have finally come to the conclusion that Nature can do as much as we can although we may be able to temporarily relieve the patient of his symptoms. Two special methods of treatment have proved of particular value in my hands. Chlorine gas treatment gives excellent results if given for a sufficient length of time and in the right dosage and particularly if it is given at the onset of the coryza. We have used it in our office for over three years with benefit and now have a special room built for it in my new hospital. It makes little difference what type of apparatus is used but our preference is for the Gilchrist apparatus which is made by the National Research laboratories in Detroit. The patient should sit in a closed chamber for at least one hour. The second method of treatment is to shrink the mucosa of the nose with a mild cocain and adrenalin solution. This is applied on flat pieces of cotton in either nostril, and then the patient is placed before a radiant heat lamp for about 15 minutes. When the cotton is removed, the nasal cavities are sprayed with some bland, oily solution. In cases in which mucopus or pus is present, one may wash out the nasal cavities very gently with a mild alkaline solution. In all cases a differentiation must be made between a simple, acute coryza and some sinus inflammation or infection. In such cases, the sinuses should be transilluminated, the same method of treatment applied but forcible suction on the sinuses may be necessary. This is best accomplished by means of a suction douche in the office and by advising a Nichol's nasal syphon at home.

I cannot resist the temptation of stating that nasal surgery has gone through a complete metamorphosis. A marked deviation of the septum may call for an operation on the septum only but, in the majority of cases, nasal obstruction is made up

of many factors among which may be hypertrophies of any of the turbinates, polypoid posterior tips of the inferior turbinates hanging down into the nasopharynx or diseased tonsils and adenoids in association with a thickening of the nasal mucosa. An operation on one of these parts only, will not correct the trouble. For that reason, we are wont to work out our pathology and to perform multiple operations at one sitting. The results are far more satisfactory. Please do not feel that everything inside the nose and throat are removed. Only enough of each part is removed to give the result desired.

Perhaps no greater advance has been made than in the diagnosis and treatment of diseases of the accessory nasal sinuses. Two evident conditions are worthy of consideration. I refer to the definite infections of the sinuses in children so ably described by Dean, of Iowa City and the relationship of various eye conditions to sinus inflammations or infections. For some years now, Dean has dwelt upon the effects of sinus conditions upon the vitality of children and the relationship of various arthritides to infections of the sinus. Briefly, he has come to two conclusions; first, that many of these sinus infections can be cured by the proper removal of tonsils and adenoids and secondly that such children are lacking in fat vitamines and that a cure can be established by feeding them upon cod liver oil and butter. Such research is significant and far reaching. Although it is necessary to operate upon the sinuses of some children, especially the antrum, a great deal can be accomplished by the removal of throat infections and obstructions and proper diet. One must also recall the fact that 20 years ago the majority of pediatricians stated that children did not have sinuses—a fact dispelled by the research work of Schaeffer of Philadelphia.

But of as great interest is the anatomical relationship of the posterior sinuses especially to the optic nerve and its blood supply. I recall making the remark, as late as 1921, in Kansas City, that one was not justified in opening the sinuses for an eye condition unless some definite pathology was found in the nose, either by examination or by X-ray. But the classic reports of Dr. Leon White of Boston, soon made me see the error of my ways. Many cases of optic neuritis, retro-bulbar neuritis, even resulting in complete blindness, have been cured by the proper exenteration of the ethmoid cells and the opening up of the sphenoid sinuses. A few years ago, I was called upon to examine a young girl who had suddenly gone blind. Every examination was negative. In spite of this fact, I opened up all of the accessory cavities and within four days, her sight began to come back and is perfect today. In other words, every puzzling condition of the eye warrants a nasal examination and, oftentimes, an operation.

In the treatment of the average nasal condition, we are tending more and more toward conservatism. Almost all acute conditions will respond to proper medical treatment and it is unwarrantable to suggest an operation unless there is definite pain which cannot be relieved in any other way. The subacute and chronic conditions will also, often respond to medical treatment and within the past year or two, we have been able to obtain excellent results from the use of vaccines locally.

I wish to stress the point of the use of vaccines here. It had been my experience in the past that the employment of vaccines hypodermatically did little or no good. Commercial vaccines work as well as autogenous vaccines if they work at all. It was therefore with a great deal of interest that I read of the experiments of Prof. Besredka, of the Pasteur Institute of Paris in rendering immunity in typhoid fever by administering the vaccine by mouth instead of by hypodermic injection. Further work proved that a suspension of the killed organisms in broth could be used on or in any part of the body as a local vaccine and many cases of osteomyelitis and many cases of skin disease of bacterial origin were treated in this way. This work suggested to me the use of the vaccine locally in the nose, throat and ear. A detailed report was made by me before the American Medical Association in June, 1925. It is beyond the province of this paper to go into details but, suffice it to say, that we have used the vaccine in over five hundred cases with very satisfying results, particularly in subacute and chronic sinus cases and in non-healing wounds such as a mastoid wound which lacks vitality. I would suggest its use in all types of surgical cases.

The question of diseased tonsils is one which has not been well decided upon up to the present time and deserves comment here. It is surprising to note how many adults have diseased tonsils and it is equally surprising to find out the number of remote conditions for which diseased tonsils are supposed to be responsible. One must bear two facts in mind—first, that

the size of the tonsil has little to do with the question and secondly that the diseased tonsil may not be the only factor responsible for the remote trouble. I have often seen small, buried tonsiles which looked perfectly harmless, cause more trouble than hypertrophied tonsils which came together in the median line. Moreover, it may happen that a shoulder disability, for example, may occur in a person with diseased tonsils, but there may be lime deposits in the subacromial bursa which cannot be removed by getting rid of the original source of the trouble. In other words, the laryngological surgeon should not promise too much. I have often stated that the removal of the tonsils, provided they are the cause of the trouble, will do a great deal of good or even cure if definite connective tissue changes have not taken place, but it is a question how much good such an operation will do when definite pathological processes have become established. An acute rheumatic process will get better when the original source of infection has been removed; a chronic arthritis may not.

The casual inspection of the tonsils is not sufficient to make a diagnosis of a diseased condition. First one should palpate for enlarged glands of the neck, especially the gland underneath the angle of the jaw. The condition of the crypts should be noted but one must bear in mind that caseous deposits in the crypts cause little harm other than local. Palpation of the tonsil is next in order. The tongue should be depressed and with the index finger, the anterior pillar should be stripped from above downward, pressure being made on the tonsil at the same time. In this way the tonsil is extruded from between the pillars so that one may get an idea of its size and consistency and pus will thus be expressed from the superior tonsillar fossa and thus will be established a definite idea of a diseased condition. It is wise, in most instances, to obtain a culture of this pus because the type of organism will often give one a clue as to the seriousness of the condition. Although ordinary cultures from the tonsillar crypts will give a multiplicity of organisms, cultures taken in this way usually show one organism only. Yet, no matter what our conjectures may be in any given case, the proof of our reasoning depends upon the results we obtain.

The removal of adenoids may seem a very simple matter, but it is surprising how many times these masses are improperly removed and it is even more surprising how many times, tissue is removed from the nasopharynx which is supposed to be an adenoid and isn't. To establish a diagnosis, except in children where the condition is self-evident, either at the time of the examination or at the time that the tonsils are being removed, one should examine the nasopharynx thoroughly either with the nasopharyngoscope or with the pharyngoscope. Although most children have adenoids, the reverse is true in adults. This tissue has a tendency to retrogress with age and it is exceptional to find true adenoid masses in patients over twenty-one years of age although small masses may be present in the fossae of Rosenmuller.

I have frequently seen a surgeon place a curette in the nasopharynx and strip down everything there without first exploring the cavity with the finger. It is absolutely necessary to determine the size, situation and consistency of the adenoid, so readily done by placing the index finger in the naso-pharyngeal space. For some time now, we have been using the adenotome devised by Dr. I. D. Kelley of St. Louis, both for diagnosis and for operation. The instrument is placed behind the palate and firm pressure brought to bear upon the pharyngeal wall. Thus any adenoid mass comes within the fenestrum of the instrument. The sharp steel blade is then forced through the adenoid. In the majority of cases, the adenoid is excellently demoved in this way but sometimes it is necessary to follow it with the curette. In all instances the cavity behind the palate should be investigated after the adenoid is removed to be sure that no remnants are clinging to the pharyngeal vault.

Tonsil and adenoid hemorrhage is an important matter. I am happy to say that such accidents seldom occur in my practice mainly, I believe because we use extreme care to see that the patient is safe-guarded before the operation and secondly because we hospitalize all of our patients and use the utmost care to do a clean operation. Every patient has a coagulation and bleeding time test taken and every patient is given calcium lactate three times a day before operation for three days. All children are operated upon under ether anesthesia; the majority of adults are operated upon under cocain or novocain. Such adult patients are given a hypodermic injection of a quarter of a grain of morphin in magnesium sulphate solution one hour before operation. It has been our experience that

serious bleeding always come from small remnants of ragged tissue which should have been removed. Seldom does the bleeding come from an artery; if it does it can be ligated. Most of it comes from torn veins and the more one tries to tie these off, the more difficulty he encounters. It is our custom in such cases to suture the pillars through the muscular part and then to insert a strip of bismuth subnitrate gauze into the fossa thus made. At the end of a day, the catgut will have dissolved and the packing can readily be removed. In rare instances, severe hemorrhages do occur and, at such times, one will have to use his best judgment in the individual case. Sometimes one will have to inject coagulin intravenously or inject horse serum into the deep muscles or he may even have to resort to a transfusion.

Great advances have been made in the study, diagnosis and treatment of various laryngeal and lung conditions due mainly to the expert employment of the direct laryngoscope and the various bronchoscopes. This specialty within a specialty has received the recognition it deserves because of the painstaking work of Dr. Chevalier Jackson and his associates in Philadelphia. Some of this work will be detailed by Dr. Moore of the Jackson Clinic at this meeting in Lansing. Much as I should like to dwell upon it, my personal experience has been limited. The advance in laryngeal and lung surgery has been most romantic and epoch-making and its possibilities are beyond our reckoning. A foreign body in the lung, such as a pin, a pea-nut shell, a tack, etc., presents little difficulty in its removal today. Lung abscesses can be washed out with certainty. Tumors of the lung and the mediastnum can be diagnosed with accuracy. I wish to give Dr. Jackson and his associates every credit for they are setting an example which it is well for all of us to follow—they are constantly training men throughout the country to do this work in the right way. The work in my office is done by my partner, Dr. Arthur Palmer, who has been well trained by them and who tells me that whenever he is up against a difficult problem, he gets in touch with Dr. Jackson's Clinic. These all-too-modest surgeons are always only too willing to advise.

Although many of the acute diseases of the middle ear deserve attention, I shall confine my remarks to pathologies of the mastoid process. One wonders, with our more precise methods of diagnosis and treatment, why more patients are operated upon for mastoiditis than formerly. The answer is, first that we are living at a time when patients seem to be more prone to infections of this bone of a virulent character and secondly that we are able to make a diagnosis earlier and thus save the lives of patients who, in past years, died of baffling intracranial complications. The mastoid operation itself is a technical operation but the incidence of death from it, when uncomplicated, is practically nil. It is for that reason that I believe the patient should be operated at the earliest moment after it is determined that operation only will save him from serious consequences. In young children two facts deserve grave consideration—first, the patient should be operated upon at an earlier date if both ears are involved in order to save the hearing and, paradoxical as it may sound, no child should be operated upon until there is a definite indication that other factors which can be eliminated have been attended to. For example, a child with a profuse discharge from both ears, running a fairly high temperature but showing by the X-ray pictures that there is no breaking down of the septa between the cells, may have a throat filled with diseased tonsils and adenoids. Often, if these are removed, the ears will cease discharging.

I consider the X-ray picture of the utmost importance in the determination of the seriousness of the underlying mastoid condition. I do not wish you to consider that I allow the X-ray picture to make the diagnosis for me for it should always be interpreted in conjunction with clinical symptoms such as a sagging of the posterior part of the drum, the pulsation of the incision in the drum, etc. Nor is one X-rav picture sufficient in many cases. Often it is necessary to have pictures taken every other day for comparison. It is surprising to see the gradual clearing up of one case in this way and the difference in the amount of destruction in another case.

Complications of mastoiditis are not as common today as they were ten years ago. That is because more men are performing better operations. Among these complications are erysipelas, sinus thrombosis and brain abscess. Erysipelas may be difficult to diagnose at first but when once discovered will respond best to repeated injections of His Leucocyte Extract (Squibb and Company). The diagnosis of sinus thrombosis will rest mainly on a positive blood culture. Although a thrombosis may take place without a positive blood culture, it is my opinion that an operation is un-

warrantable unless the culture is positive. We realize that this opinion is contrary to the one generally expressed; yet in 20 years of practice, I have not had to change this opinion.

When both mastoid processes have been operated upon, it has always been a difficult question to decide on which side the thrombosis has occurred. Fortunately today we can determine this matter by employing the spinal manometer devised by Dr. George Tobey of Boston. By inserting a needle into the spinal canal connected with long glass tubing and exerting pressure upon the jugular veins in the neck, one can tell which vein is thrombosed; for the spinal fluid will not rise in the glass tube when pressure is exerted on the side on which there is a thrombosis.

No greater therapeutic measure has come to our hands in cases of sinus thrombosis than blood transfusion. Whenever a patient becomes devitalized as the result of a mastoid operation, whenever a patient shows symptoms of a possible sinus thrombosis, especially if the blood culture is negative, I have insisted on a transfusion of whole blood with eminently satisfactory results. And in the past few years, when a case has presented itself which needed an operation upon both ears and it was difficult to decide which vein was affected, even when the blood culture was positive, I have given a transfusion with the result that this added new blood has fought off the infection and I have not had to operate. I now have four cases on record of children who are perfectly well today who had a sinus thrombosis with a positive blood culture who have recovered after a transfusion and never were operated upon. In my recent text-book I have dwelt upon this subject at some length.

I cannot conclude this paper without some dissertation upon the subject of progressive deafness, a subject which ought to be of more universal interest than it is. I shall talk of this matter more in detail at the meeting tomorrow. Considering that a survey of the hearing defects of school children in the United States brings out the fact that over 3,000,000 children are suffering from defects of hearing which retards them in their school work, one should give this matter grave consideration.

The average practitioner is little interested in this subject and it is his usual policy to put these patients in the scrap-heap. In the first place, he knows nothing which will help these poor unfortunates and secondly he is inclined to feel that they will get better or worse no matter whether they undergo treatment or not. But he does not realize that deafened individuals will demand treatment and, if they cannot be improved by legitimate medical men, they will go to the quacks. Millions of dollars are wasted each year in this way and there is untold disaster.

Deafened patients divide themselves into two classes—those that can be helped and those who will have to resort to means other than medical to attune themselves to their misfortune and their environment. But the doctor is needed in both classes of patients. The first class he treats physically, the second class he treats psychologically and refers to one of the agencies which are springing up in various parts of the country—one of the Leagues for the Hard of Hearing, associated with the American Federation of Organizations for the Hard of Hearing.

Children who are deafened need one kind of treatment; adults who are deafened need another kind. I have observed deafened children for a great many years and have, briefly, come to the following conclusions: 1. The main causes of deafness are repeated colds in the head, tonsils and adenoids, discharging ears which have run too long or have not received proper attention and a devitalized state of the child which does not allow the mucosa of the nose, throat and ear to become normal after it has once been diseased. The unfortunate circumstance is that these children cannot tell you that they are hard of hearing and the condition only becomes apparent when the hearing is properly tested or when a report is sent in from the school that the child is backward in his studies. 2. The condition in the ear which causes the deafness is either a so-called catarrhal one or a suppurative one. Eighty per cent of such children can have their hearing improved or the deafness entirely relieved if the ear is properly treated at this time. When one considers the fact that the majority of patients who show deafness later on in life had such a condition present since childhood, one can realize the importance of taking care of the trouble at that time. Please bear these facts in mind and realize that you have an important duty to perform and that the happiness of the next deaf child who comes to you may be preserved if you will only take the time and trouble to go into the case thoroughly and give the proper advice and treatment.

With our newer and more precise meth-

ods of examination, the treatment of the adult deafened is placed on a common sense plane. It is impossible to cure many of these patients; it is possible to improve the hearing of many of them or at least bring the hearing up to a satisfactory maximum where it can be maintained if the patient will co-operate with the physician. Not only must the ears be examined to note the retraction or relaxation of the drum, but one must examine the nose and throat carefully and the condition of the naso-pharynx and eustachian tube with the pharyngoscope or nasopharyngoscope. Then the hearing should be tested with the audiometer. If there is a loss in the lower notes of the musical scale, one can do a great deal by local treatment; if there is a loss in the upper tones, one must analize the general condition of the patient and not be satisfied until he finds the general physical cause which is the underlying irritation to the internal, auditory mechanism. I have seen patients greatly improved by simple Politzerization; I have seen other patients made hopelessly deaf by too forcible inflation of the ears; I have seen other patients cured by the removal of a gall-bladder. Thus one can see how remote the cause of the condition may be. Above all, under no circumstances, should one allow a deafened person to leave with the advice that nothing can be done. One places them in a position where life is not worth while living. As I stated before, such patients must be treated psychologically and they must be impressed with the fact that they are far better off in the hands of the honest otologist who promises little than in the hands of the quack who promises much.

SURGICAL ANATOMY OF THE GALL BLADDER REGION

WALTER L. HACKETT, M. D., F. A. C. S.
(Attending Surgeon, St. Mary's Hospital)
DETROIT, MICHIGAN

The gall bladder and its ducts, more often require operative treatment than any other intra-abdominal viscus, with the acception of the appendix. The technic of gall bladder surgery is very intricate, especially when pus and adhesions are present, and it is important that one should have a clear knowledge of the anatomical abnormalities he may find before attempting to operate in this region.

ANATOMY

Let us first examine the normal anatomical relations as described by all anatomical text-books.

The gall bladder is a conical sac in a fossa on the under surface of the right lobe of the liver, its upper surface is attached to the liver, its fundus is completely invested by peritoneum, and its posterior surface is covered by peritoneum reflected from the liver; the body is in close relation with the first portion of the duodenum and the hepatic flexure of the colon; the cystic duct passes behind and upward to the left, and joins the hepatic duct at the mouth of the portal fissure. The hepatic duct is formed by the right and left ducts, from the right and left lobes of the liver, joined together at the bottom of the transverse fissure. The cystic and hepatic ducts join together and drain into common bile duct. which passes down in front of the foramen of Winslow within the layers of the gastro-hepatic omentum. The portal vein is behind it, the common duct hepatic artery to left of it. It descends behind the first part of the duodenum and enters the second part after pasisng between the head of the pancreas and the duodenum lying on the inferior vena cava. This duct is about three inches long. The hepatic artery, from the coeliac axis, enters the transverse fissure and divides into two branches, one for each lobe of the liver. The right branch gives off the cystic artery, which supplies the gall bladder—this is illustrated in Fig. 1.

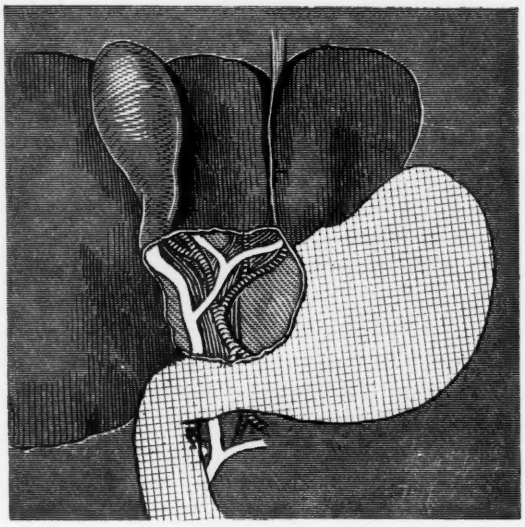


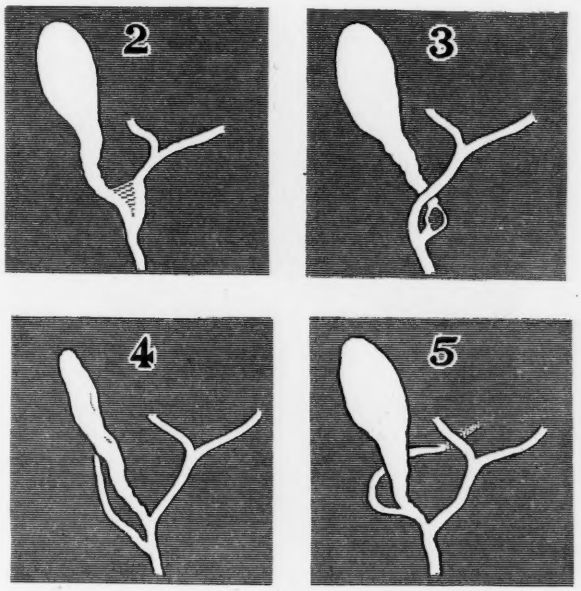
Figure 1

ABNORMALITIES

Let us now examine the abnormalities that may be found in the bile ducts.

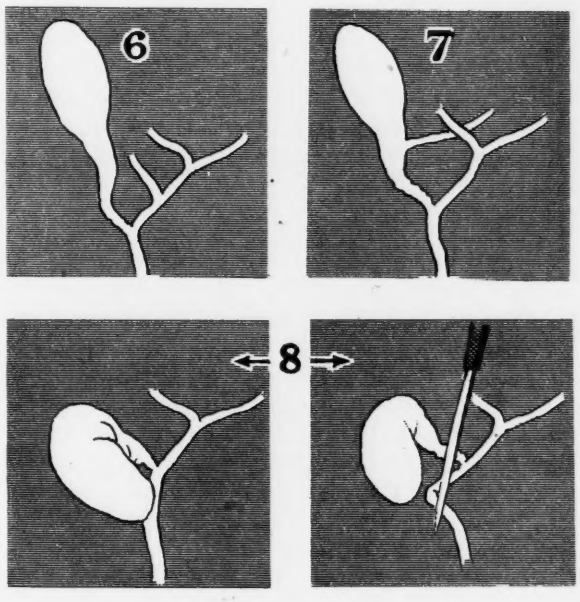
Normally, the cystic and hepatic ducts join. The hepatic duct is about one inch long, and the cystic duct one and a half inches. They drain into the common duct.

which is three inches long. In a great many cases, about 90 per cent, the cystic duct and hepatic duct do not join when they come together, but run side by side, being held together by a fibrous band, and united about ½ in. above the upper border of the duodenum, as shown in Fig. 2. In a number of cases the ducts join below the border of the duodenum; or the cystic and hepatic ducts may enter separately into the duodenum and no common duct be present at all; or the cystic duct may coil itself round the hepatic duct before joining it—as shown in Fig. 3. A stone lodged in such a coil may easily be overlooked, or in removing it the common duct may be opened or injured. But the most interesting abnormality in the ducts is found in the presence of an accessory bile duct. In about 10 per cent of all cases there is present a right accessory hepatic duct—as shown in Figures 4, 5, 6 and 7. Thus, unless the operator is aware of the presence of an accessory duct in this region, in doing a cholecystotomy he is liable to injure or tear it across so that a biliary fistula results—that is, if he has been careful to drain; if he has not drained, the bile leaks through this torn duct into the peritoneal cavity, with disastrous results to the patient. Mr. Flint[1] of Leeds reports eight cases examined post mortem whose deaths were caused altogether by leaking of bile into the peritoneal cavity.



Figures 2, 3, 4 and 5

Another complication may follow cholecystectomy from an abnormally short cystic duct with a large sigmoid gall bladder, which may adhere to the common duct—as shown in Fig. 8. When the gall bladder is pulled up, the common duct is pulled up with it, and if the surgeon does not recognize the common bile duct, he may injure it or ligate it. This accident may happen in the hands of the most careful surgeon.



Figures 6, 7 and 8

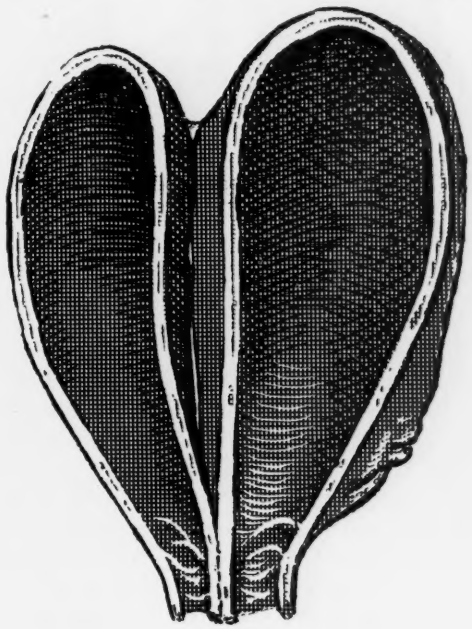


Figure 9

"Two Complete Cavities Each Possessing Its Own Cystic Duct."

JAMES SHERREN, F.R.C.S.,
(Surgeon to the London Hospital).

OPERATION—July 20, 1910, London Hospital
Woman 25 years old—

1911—Annals of Surgery, Vol. 54, P. 204.

Double Gall Bladder Removed by Operation. Specimen in Museum of Royal College of Surgeons of England (No. 551.21).

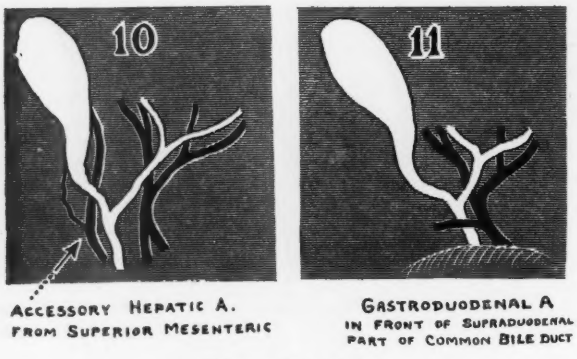
"Joined Only Along a Narrow Portion of Their Circumference."

See "Post Mortem" Case, Dr. Purser, November 5. 1886, British Medical Journal, Academy of Medicine in Ireland Pathological Section.

An English surgeon of wide experience informed me that it had happened with him four times. He also stated that he had re-operated upon a number of such cases, which had formerly been operated upon by other surgeons.

A very interesting condition, which has been reported by Mr. James Sherren[2] in the Annals of Surgery, 1911, is that of a double gall bladder. This specimen may be seen in the Pathological Museum of the Royal College of Surgeons, London, (see Fig. 9). It is a very rare condition, only one other case having been reported, by Dr. Purser[3], November 5th, 1886, British Medical Journal. I have examined Mr. Sherren's specimen, but have never seen any other case.

There are a number of abnormalities in the arteries of this region that the surgeon must recognize. In about 3 per cent of all cases, there are two separate and distinct right hepatic arteries—as shown by Fig. 10,—one coming from the superior



Figures 10 and 11

mesenteric artery, passing behind the cystic duct, and giving off an accessory cystic artery to the gall bladder. This accessory artery is easily injured during the cholecystectomy, and causes profuse bleeding. Also, in opening the common bile duct, it is possible to have a severe hemorrhage from the gastro-duodenal artery, which sometimes curves over in front of the supraduodenal part of the common bile duct—as shown in Fig. 11.

As pointed out in the beginning of this paper, there are no normal peritoneal connections between the duodenum and the gall bladder, or the gall bladder and transverse colon. In about 33 per cent of all cases, there is a concentric fold of peritoneum with a free anterior edge, passing downward from the neck of the gall bladder to the first part of the duodenum. This fold may pass upward to reach the transverse colon; it is a remnant of the mesogastrium, and is called by many names, such as[4]:—the *hepatic colic*, *cystic colic* or *Cystic duodenal ligament*. I have seen this fold many times on the operating table and in the dissecting room—as shown in Fig. 12. I have also seen it mistaken for ad-

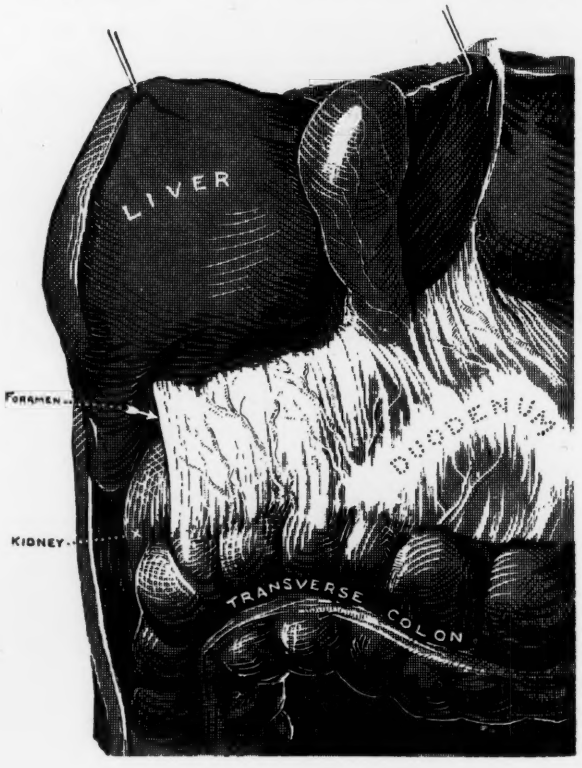


Figure 12

hesions, and a perfectly normal gall bladder removed because the operator was not familiar with the anatomical peritoneal relations of this region.

It is well to know the difference between peritoneal reflections and inflammatory adhesions. Peritoneal reflections always have two layers between which blood bessels ramify, while inflammatory adhesions are composed of only one thin layer, without ramification of blood vessels. It is possible for this cystic duodenal fold to so kink the duodenum as to cause an obstruction. One such case has been reported, (Lancet[5], February 10th, 1923).

The technic of cholecystectomy varies with different surgeons. In doing a cholecystectomy, or in operating upon the bile ducts, wide exposure is very necessary. This is best accomplished by complete anaesthesia and an ample incision. I have been injecting the trunks of the lower six intercostal nerves (see Fig. 13) as they run between the external and internal intercostal muscles, in the intercostal spaces along a line just internal to the lower angle of the scapula, with 2 per cent novocain. To make sure that relaxation is complete,

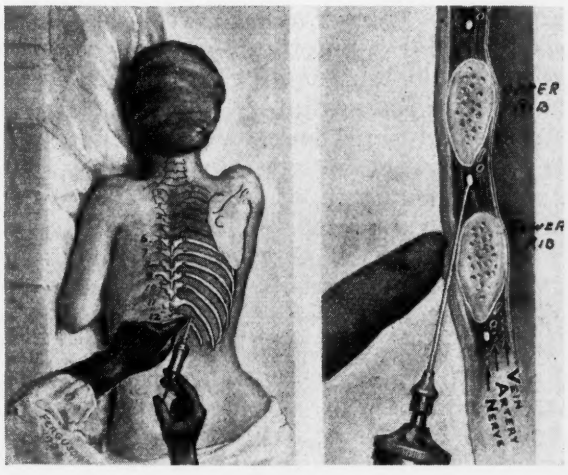


Figure 13

I also inject each layer of the abdominal wall before cutting through it. A right-rectus incision is used, (see Fig. 14) and

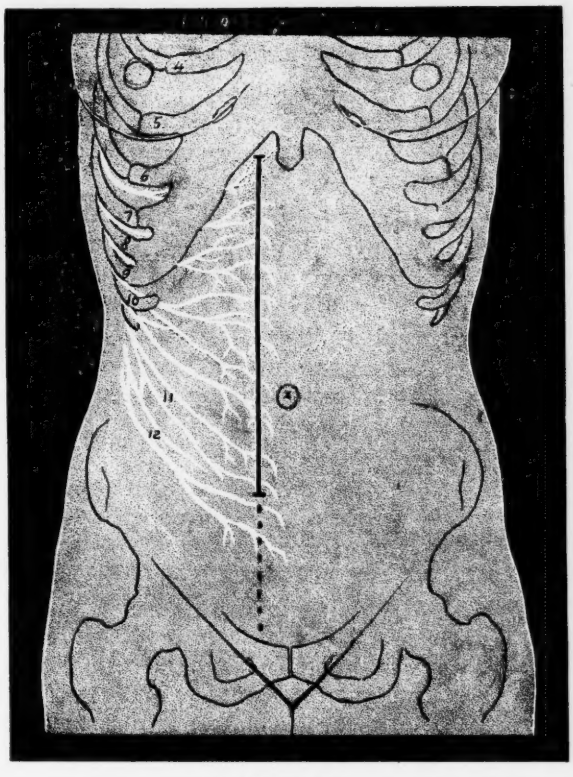


Figure 14

the right rectus muscle dissected from its bed and retracted outward, (see Fig. 15 and 16) so that the blood and nerve supplies of the muscle are not injured. This incision may extend from the lower border of the ribs as far as the pelvis, if necessary. In removing the gall bladder it is always well to fix its neck with a hemostat, then, snip open the gastro-hepatic omentum here, and gently push the fta away downward toward the common duct, exposing the structures in the region; then

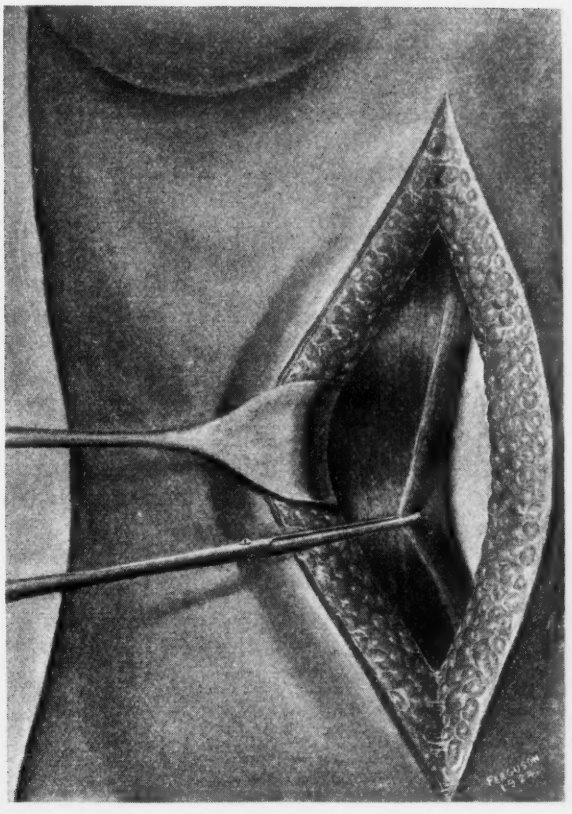


Figure 15

the cystic duct is clamped and ligated, and the cystic artery treated likewise, and the gall bladder removed from below upward.

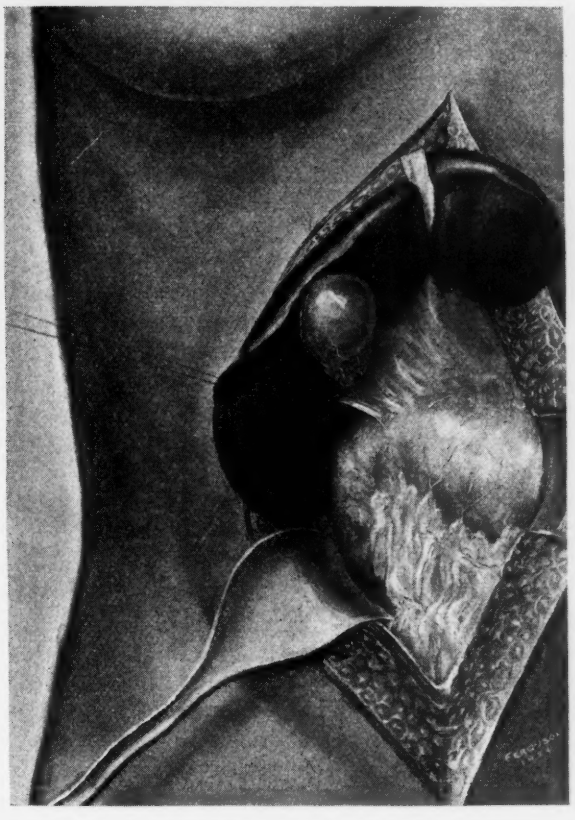


Figure 16

CONCLUSION

In conclusion I wish to state a few rules that one might follow in doing a cholecystectomy, or an operation on the bile ducts.

First—It is well, before every operation, to review the anatomy, normal and abnormal.

Second—In this region never ligate en masse.

Third—It is well never to cut or tie any structure unless one is certain of its identity.

Fourth—Never close the abdomen without drainage after cholecystectomy.

Fifth—Never close the abdomen after a cholecystectomy without examining the common and hepatic bile ducts.

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INDICATIONS FOR AND LIMITATIONS OF DEEP ROENTGEN RAY THERAPY

U. V. PORTMANN, M. D.,
(Cleveland Clinic)
CLEVELAND, OHIO

The technic of 'short wave' or 'deep roentgen therapy,' as produced by high voltage apparatus and heavy filtration, was a natural outcome of the investigations concerning the physical action of the various wave lengths of the spectrum and especially those of the roentgen rays and of radium. The understanding of the physical properties of radiation led to the development of methods for the application of doses measured with scientific accuracy. Nevertheless, the older methods of treatment are still preferred under certain conditions. The technic of deep therapy is still progressing, however, and it is well for the general practitioner as well as the roentgen ray specialist to keep in touch with the changes in technic and the reasons therefor.

It was thought, a few years ago, that for the treatment of malignant disease a single massive dose of radiation was necessary, so that the entire dose was administered in the shortest possible time. Unfortunately, however, the systemic reactions to the single massive dose are extremely severe and there is no method whereby they can be prevented or successfully treated. To meet this difficulty, three years ago we attempted to divide the treatment so that the same total amount of radiation would be given over a longer period and it was found that as good or better results could thus be obtained without undesirable reactions which may depress the normal resistance of the patient. By a proper division of the dose, and by allowing a suitable length of time between treatments, it is also possible to take advantage of the cumulative effects of the successive doses of radiation, so that a much larger dose can finally be administered than is possible when only a single dose is used. Another method called the 'fractional dose treatment' consists in administering small doses daily or twice daily, until the equivalent of a total massive dose has been given. We have found, however, that this technic prolongs hospitalization unnecessarily and requires more of the doctor's time without a greater effect than can be secured by the divided technic.

It is known, both clinically and experimentally, that a very large dose of radiation is required to destroy a malignant disease, and since the tissue reactions and cellular changes produced by the single, the divided, and the fractional dose methods vary somewhat, it is probable that eventually the best results will be obtained by using different methods for the treatment of different forms of disease.

Although we now have a fairly comprehensive knowledge of the physical action of radiation and have improved the technic of administration, unfortunately our understanding of the biological effects of radiation is comparatively meager. Considerable research is being carried on in this field, but we are limited by our ignorance of the physiological chemistry even of normal tissues. We have no method whereby to measure biological reactions in tissues nor is there a constant by which we may estimate the reactions of individuals. The cellular changes which are described as nuclear fragmentation, vacuolization, hyalinization, and fibrosis with lymphatic infiltration are not solely characteristic of radiation, though it is thought by some that the cellular changes following radiation can be distinguished from similar changes produced by other agents. Moreover, the fact that these morphological changes do occur does not tell us how radiation has brought them about. Several theories are advanced to explain the production of these biological effects, as, for example, that ionization takes place within the cell; or that intense heat is produced at

the point of impact of the high speed electrons, so that the electrostatic tension of the colloids is interfered with; or that the molecular structure of the constituents of the cell is altered; but none of these theories has been finally established.

Many believe that normal tissues play an important role in the destruction of malignant cells and that radiation directly or indirectly enhances this normal resistance. Certain observations and experiments seem to favor this conception, since it has been shown that less radiation is required to influence malignant tumors *in vivo* than i*n vitro*. It may be that the increase in lymphocytic infiltration which follows radiation is due to a reaction of normal tissue to stimulation since it is also observed after other insults to normal tissues.

Primarily through experience, later through experimental investigations, we have learned that certain types of normal tissue are more susceptible to radiation than others. The tissues in the following list are arranged according to their relative degrees of sensibility: leucocytes, germinal cells, spleen, lymph, bone marrow, endocrine organs, blood vessels, dermal structures, viscera, and connective tissue. Cell types in tumors also vary in sensibility, so that malignant tissues may be similarly classified according to their relative degrees of susceptibility, as follows: (after Ewing)

1. Lymphoma: (lymphocytoma, lymphosarcoma, myeloma).
2. Embryonal tumors: (carcinomata of the testes or ovary; basal cell carcinomata).
3. Anaplastic cellular adult tumors: (round cell carcinomata, diffuse carcinomata).
4. Desmoplastic tumors: (carcinoma simplex, squamous carcinomata).
5. Adenocarcinomata: (a d e n o m a t a of the uterus, intestine, breast, etc).
6. Fibroplastic carcinomata: (osteo sarcomata, neuro sarcomata).

According to these classifications we may anticipate to a certain extent the probable effects of radiation in any given case, by ascertaining the type of tissue in which the disease occurs or the type of cells of which a tumor is composed.

Several years of experience have now tempered the universal optimistic belief that deep roentgen therapy would become the preferred method for the treatment of all forms of malignancy. At the present time we can only make the general statement that according to our experience, deep therapy is limited to (1) the treatment of conditions which are inoperable, and (2) to use as an adjunct to other procedures.

An effort is being made to group malignancies so that their probable surgical curability may be determined from their anatomical distribution or from the limitation of the diseased area. It is obvious, however, that any grouping is comparative and cannot include all grades of malignancies but that it must be based upon the cumulative experience of many surgeons as expressed by statistical studies of their results. It is frequently difficult, in an individual case, to determine the possible benefits of surgical procedures alone, so that it is essential that the possible benefits that may be derived from other methods of treatment should be taken into consideration.

This indicates, then, for both the surgeon and the radiologist, the necessity for a comprehensive knowledge of the characteristics of malignant disease as well as of the technical details of all the various methods of treatment. Indeed the treatment of malignant disease is becoming so specialized and radiation therapy has proven to be of assistance in so many cases that surgeons may no longer deride the possible benefits to be secured from its use, while on the other hand the radiologist should not attempt to treat all sorts of malignant disease without an appreciation of the possibilities of surgical treatment.

It is obviously impossible to include within the scope of a single paper all the conditions in which deep roentgen therapy is indicated. Over one hundred and twenty different conditions have been cited in which roentgen therapy has proved to be of definite value. I shall therefore confine myself to some of our own observations which perhaps point out the limitations of roentgen therapy rather than the positive indications for its use. I shall purposely exclude from this discussion such nonsurgical conditions as lmpphosarcoma, lymphoblastoma, the leukemias, etc., in which roentgen ray treatment has proven to be the therapeutic method of choice. For some of these conditions deep roentgen therapy produces quicker results than do the old methods and measured doses may be administered with considerable accuracy.

MALIGNANCIES OF THE MOUTH

For malignancies of the oral cavity we have found roentgen therapy to be of little value except as an adjunct to surgical procedures or to the application of radium in

various forms. We believe, however, that deep radiation of the cervical lymph nodes before and after the operative removal of the growth is distinctly beneficial, whether or not these nodes are clinically involved. A secondary reaction which is of considerable comfort to these patients is the temporary suppression of the activity of the salivary glands. Most patients with an oral malignancy suffer considerably from salivation, so that the temporary relief of this condition is a distinctly palliative measure.

CARCINOMA OF THE THYROID GLAND

There is still some debate among pathologists as to the evidences of malignant degeneration in the thyroid gland. However, a clinical diagnosis of carcinoma can be made in almost 100 per cent of the cases in which the patients are past 55 years of age. In young patients, however, the disease usually is not diagnosed. The condition is not of infrequent occurrence, malignant changes having been found in about 2.2 per cent of our total series of thyroidectomies. The surgical prognosis is good if the disease is confined within the capsule. The most favorable surgical results have been obtained in undiagnosed cases, that is in early cases in which, after a thyroidectomy, microscopic examination has shown the gland to be malignant. When invasion of the surrounding tissues has taken place through the capsule the surgical results are not so good and recurrences are almost certain. It is in this type of inoperable cases in which the gland is hard and fixed and there has been a rather rapid unilateral enlargement, that radiation definitely prolongs life and offers a probable cure in some cases. We have found that in some cases in which a large tumor is present it is advisable before radiation to perform a 'decompression operation,' by removing the large obstructing portion of the gland. In some cases a tracheotomy is required since the oedema and tracheitis which sometimes follow radiation of the neck may occasionally be so severe as to increase the obstructive symptoms and menace the life of the patient.

CANCER OF THE BREAST

There has been much discussion as to the value of post-operative X-ray therapy for breast carcinoma. In a recent report based on a review of the literature and on our own experience, I offered the conclusion that deep X-ray therapy by the cross-fire method not only does not improve the surgical results but, on the contrary, is followed by more frequent recurrences. Thus, according to our statistics, operation alone was followed by recurrences in the first year in only 16.5 per cent of our cases; while among those cases in which intensive radiation by cross-fire methods followed operation, 35 per cent showed recurrences in the first year. However, most of these cases were treated during 1922 and 1923; and since that time our results have been considerably improved by the employment of less intensive radiation. This experience should indicate to the surgeons the necessity for a very radical operation in all cases of cancer of the breast.

The fact that recurrences were apparently increased after intensive cross-fire radiation pointed out the probability that many malignant cells remain after the complete surgical removal of the breast which must ultimately be destroyed by the natural resistance of the patient. It is possible that this natural resistance is interfered with, not so much by the local effects of radiation, as by the unfavorable general systemic reactions which follow intensive radiation of the large volume of blood in the lung. The unfavorable results in our first group of cases, as reported above, were undoubtedly due to a faulty technic. Our results have been greatly improved by less intensive radiation and by more frequent treatments, following somewhat the former method with lower voltage and less filtration, so that the dose is administered superficially into the chest walls and the gland-bearing areas rather rather than deeply into the lung.

At the present time we feel that the treatment of an operable breast cancer by radiation alone is not justified excepting in the case of a patient who cannot, or will not, be operated upon. However, certain investigations are being made which seem to offer ground for belief that even in cases of operable cancer of the breast the results of radiation by radium and X-ray combined will equal those of surgical procedures, thus obviating the mutilating and hazardous operations. Several of my patients who were treated by X-ray alone because they refused operation are well past the three-year period.

Pre-operative radiation in cases of cancer of the breast is a logical procedure and though, up to the present time, we have had an insufficient number of cases to make our results of value, nevertheless we fell that we have a sufficient basis for believing that by this method we shall obtain better results. We believe the proper procedure is

to radiate the breast and the gland-bearing area by X-ray, and at the same time to treat the tumor by radium packs and needles, the operation being performed from two to three weeks after radiation. The combined local reaction of the radium and X-rays need not be feared since the breast will eventually be completely removed. It is obvious that there must be the closest co-operation between the surgeon, the radiologist, and the patient in carrying out this method of treatment and one must not be so optimistic as to omit the operation in cases in which the tumor is reduced in size or disappears after radiation.

In cases of cancer of the breast in which the axillary or supraclavicular glands are palpably involved there is much less chance that the patient will be cured by operation alone. A case of this type should no doubt be considered as inoperable since it is usually impossible to remove all the gland-bearing tissues. When the axillary glands are palpably involved operation is followed by 'three-year cures' in about 15 per cent of the cases, while if the glands are not involved 'three-year cures' follow in about 95 per cent. However, probably not more than 5 per cent of the cases of breast cancer which come to the surgeon are free from axillary involvement. In my opinion, cases in which there is axillary involvement are best treated by radiation alone, that is by a combination of X-ray therapy and radium. However, our surgeons are not yet entirely in accord with this opinion. When tumors and glands become reduced in size by radiation there is a temptation to consider that the case has become operable, but it has been our experience that once a case is inoperable it is always inoperable. We have operated upon some cases in which the involved glands were no longer palpable and the tumor had become much reduced in size, but the operation disclosed more involvement of the axillary tissues than was anticipated, and the patients did not do so well as those who were not operated upon. It should be remembered that the average duration of life in cases of untreated breast cancer is almost three years, so that three year statistics are of no comparative value. A great many inoperable cases live comfortably past the three year period after treatment by radiation alone.

TUMORS OF THE FEMALE GENITAL ORGANS

It is well known that the results of the radiation treatment of carcinoma of the cervix equal, in fact surpass, the results obtained by surgery. Our results show that over 33 per cent of the cases of carcinoma of the cervix which have been treated by radiation have remained symptom-free for four or more years. The anatomical formation and the location of the cervix make it readily accessible for the implantation and application of comparatively large doses of radium. A few years ago in certain clinics an attempt was made to treat these cases by the X-ray alone, since it was thought that it would be possible to deliver sufficient X-ray radiation into the pelvis to destroy malignancy. The cases thus treated showed a temporary improvement but the disease recurred later. At present, the preferred method of treatment is by a combination of radium and the X-ray, radium being the main factor in the cure, and the X-ray an important aid in building up the effects of radium, especially in zones at a distance from the cervix. We believe we have recently improved our technic by delaying the X-ray therapy for about three weeks, or until the radium reaction has subsided. We have found that this procedure minimizes tenesmus and intestinal irritations that otherwise cause considerable distress and reduce the vitality of the patient.

We still treat carcinoma of the fundus by operation followed by X-ray radiation. However, since a few cases treated by radiation alone have made satisfactory progress, it may be that the surgeons will soon yield these cases to the radiologist.

Fibromata of the uterus are usually treated surgically. We exclude from radiation all patients under 38 years of age, any patients showing evidence of pelvic inflammation, and patients in whom the tumor is above the umbilicus, in the last case because the regression of the tumor after radiation is so slow that pressure symptoms may not be relieved soon enough. When hemorrhage is severe we prefer to use radium first, followed by the X-ray, since the reaction to the X-ray is delayed and may not check the bleeding promptly, while the cauterizing effects of radium will give immediate relief. We believe that the method of choice for the treatment of carcinoma of the ovary is surgical treatment. I have been unable to influence papillomatous carcinomata of the ovary by radiation. This condition is characterized by a slow growth with periods of apparent quiescence, so that one may be misled into believing that the patient has been benefited when actually the dis-

ease is following its natural course. Repeated operations sometimes prolong the lives of these patients for a number of years.

CANCER OF THE STOMACH AND OESOPHAGUS

We cannot report that the status of patients with malignancies of the oesophagus or stomach has been improved by radiation therapy. We are frequently misled into believing that patients with carcinoma of the stomach have been benefited because they gain weight and feel better after radiation following a gastroenterostomy or gastrostomy. It should be remembered, however, that this is the usual course of events after such an operation and that it is probably the operation and not the radiation which is responsible for the temporary relief; these patients live from six to 18 months when not treated by radiation so that only those cases which live more than 18 months after treatment can be said to have received any benefit. It is physically impossible to deliver sufficient radiation to destroy a malignant growth of the stomach because of the danger to the adrenals and liver. We have had several cases in which the patients lived as long as 18 months and a few a longer period but, though we believe a few patients have been benefited, we are inclined not to radiate obviously hopeless cases, since we sometimes make them uncomfortable by radiating through the liver. Cancer of the oesophagus is limited in extent and intensive X-ray radiation through the lung may produce pulmonary fibrosis. These cases are treated by radium alone, since our experience has proved that X-ray therapy does not improve the results but, on the contrary, seems to hasten the mediastinitis which is the immediate cause of death in all these unfortunate cases.

CARCINOMA OF THE INTESTINES AND RECTUM

Of course carcinoma of the large intestine should be operated upon if possible. Pre-operative radiation is contraindicated because the resultant inflammatory reactions will interfere with operation; post-operative radiation, however, is justified. For inoperable cases a colostomy or caecostomy should be made, and if possible, tubes of well filtered radium implanted into the lumen of the bowel, following which deep X-ray therapy may be administered. We have thus treated two patients with inoperable carcinoma of the caecum who have lived for more than three years and their caecostomies have closed. It has been my experience that most malignant growths of the large intestine except colloid carcinoma are amenable to radiation.

The results of the surgical treatment of carcinoma of the rectum are not very good. The average mortality rate of operative treatment is high, being seldom less than 20 per cent, and the curability for only three years is only 16 to 20 per cent. Inoperable cases live from 8 to 12 months, but may survive for 2 years after a colostomy alone. The operability of carcinoma of the rectum depends upon the judgment of the individual surgeon, which frequently means that a possibility of removing the tumor is made the indication for operation rather than a possibility of curing the patient. That this is the case is indicated by published statistics which show an operability rate varying from 19 to 85 per cent. From the standpoint of curability our operable cases have not been more than 10.4 per cent of our total series. The average duration of life after operation in our series has been only six months, as contrasted with 13½ months for cases treated by radiation alone. Thirty per cent of the 46 patients treated by radiation alone are still living three or more years after treatment; 60 per cent are living from two to three years, and 62.5 per cent are living from one to two years. We are now treating more cases of carcinoma of the rectum by radiation alone than formerly, although when the tumor is small and low down in the vowel the patient is usually operated upon. Our procedure in all cases of cancer of the rectum is first to make a colostomy, whether or not there is obstruction, the object being to explore for metastases and to provide complete rest of the rectum, so that the inflammatory reactions of the disease will subside. After about 10 days an examination is made to determine the operability, since frequently the entire picture of the disease changes during this period of rest with daily irrigations of the distal segment. If there is any doubt as to the operability the case is irradiated, and often operable cases are irradiated if the tumor is found to be readily accessible for the implantation of radium. The average dose of radium is from 2,600 to 3,000 mg. hrs. with heavy screening; it is usually applied in tubes but occasionally needles are used. Following the radium treatment, a full course of deep X-ray therapy is given. Not infrequently patients suffer considerably for two or three weeks after radiation, especially when the growth is low down in the

bowel. To allay this discomfort we sometimes make a subcutaneous myotomy of both the external and the internal sphincter so as to eliminate the spasm.

BONE TUMORS

Malignant tumors of the bones are either primary or metastatic. Obviously metastatic malignancies cannot be treated surgically and radiation offers the only palliative measure. It is an interesting observation that sometimes metastases in a distant, untreated area improve when another lesion is irradiated. By conservative treatment pain is relieved and undoubtedly life is definitely prolonged. Patients suffering from bony metastases should always receive the advantage of radiation therapy even though there may be no hope of a cure.

The Committee of Registry of Bone Sarcoma of the American College of Surgeons is uncertain whether or not any case of primary malignancy of the bone has been cured by surgery or radiation. In most of these cases a correct diagnosis is not made until late, as the condition is usually considered to be rheumatism or osteomyelitis. These cases should be referred to the radiologist for pre-operative and post-operative roentgen therapy or, in inoperable cases, for palliative treatment. If a limb is involved and the condition is not obviously inoperable we feel that a radical amputation immediately following radiation offers the best chance of relief. The use of radium in or near bone is contra-indicated on account of the sensitiveness of the periosteum which will be destroyed with resultant necrosis. It is interesting to note that ossification will follow the radiation of bone tumors and that in some cases complete ossification may take place, the patient surviving for some time but ultimately succumbing to metastases. I recall that in two cases of osteogenic sarcoma, one of the lower femur, and another of the rib, in which the patients lived over two years but eventually died of metastases, the original tumors were so completely healed by radiation that no malignant cells could be found by microscopical examination.

MALIGNANT TUMORS OF THE GENITO-URINARY TRACT

The embryonal tumors of the kidney or testes are very susceptible to radiation and if operable should be treated both before and after operation. These tumors regress so rapidly that in cases in which the size of the tumor has made one hesitate to operate, the diminution in size after radiation will often make an operation seem feasible. We have found, however, that in such cases there is always more diseased tissue than can be discerned by the palpating hand and we have regretted that we have subjected them to operation. A tumor of this type should be irradiated no matter how hopeless the outlook. I learned this lesson from a case of sarcoma of the testicle with large abdominal metastases, in which I at first refused treatment because we thought the patient had only a few weeks to live. In response to the pleas of the patient and of his family, however, I gave conservative treatment, with the result that the patient has been economically useful for over two years.

Carcinoma of the kidney and hypernephroma, and especially papillomatosis, should be treated surgically excepting in the obviously hopeless cases which may be irradiated for palliation.

Unfortunately my experience with the irradiation of bladder tumors has been limited to inoperable or post-operative cases. Generally speaking, our results have been unsatisfactory as far as cures are concerned. There has been evident palliation in almost all cases, this I think being due more to the relief of the inflammatory state than to actual destruction of the tumor, though we have seen some tumors become considerably reduced in size. Most bladder tumors are papillomata, which are resistant to radiation. Some radiologists have had more favorable results in the treatment of bladder tumors than we are able to report, perhaps because of the nature of our cases. From our experience I believe we may draw the following conclusions: (1) If the tumor is small, it should be excised at once; (2) if it is moderately large, pre - operative radiation should be given, and in about three weeks the operation should be performed, at which time gold seeds of radium emanation may be implanted; and this may be followed by more roentgen therapy; (3) if the tumor is large, it may be treated by cauterization followed by deep X-ray therapy.

For malignant disease or benignhypertrophy of the prostate the treatment is approximately the same as for bladder tumors. Frequently patients are greatly relieved from urinary difficulties though there may be little or no palpable reduction in the size of the gland. The hard schirrous type of tumor does not respond to treatment as well as the soft adenomatous

type, hence the results of the irradiation of a series of malignant tumors of the prostate are apt to be much better than those in a series of bladder tumors, since most of the former are adenomatous. It is possible to irradiate these tumors irrespective of a high blood urea or to use radiation while the patient is being prepared for an operation which is considered hazardous on account of the bloodfindings.

CONCLUSIONS

1. Short wave or deep roentgen therapy is a distinct advance in radiation therapy.
2. Roentgen therapy is indicated for the treatment of certain non-surgical diseases which have long been known to be relieved by roentgen radiation.
3. In the treatment of malignant disease deep roentgen therapy is limited to and is indicated for inoperable conditions.
4. The chief field of usefulness of deep roentgen therapy is as an adjunct to other procedures.
5. Though cures may not always be anticipated, pain may be relieved, life prolonged, and—of especial importance—the period of economic usefulness of the patient may be extended.

RECONSTRUCTION OF THE NASAL BRIDGE BY MEANS OF AUTOGENOUS RIB CARTILAGE GRAFTS

W. T. GARRETSON, M.D., F.A.C.S., F.R.C.S.
DETROIT, MICHIGAN

The depression of the nasal bridge results in marked alteration of the appearance of the patient with much embarrassment as a result of this disfiguring deformity. Anything that may be done to restore the patient's appearance to its original condition certainly is worth while. This distressing deformity may result from:

(1) Congenital mal-formation.

(2) In cases where submucous resection of the nasal septum has been improperly done in that too much cartilage has been removed, or where an abscess has followed as a result of faulty technic.

(3) Abscess of the septum, boils, furuncles, etc., originating in the nasal vestibule.

(4) Atrophic rhinitis, syphilitic gumma of the nose, nasal bones, and nasal processes of the quadrilateral cartilage of the nasal septum.

(5) Trauma resulting from communicated fracture of the nasal bones, the nasal processes of the superior maxilla, or the nasal processes of a frontal or a fracture

1. Front view taken before plastic operation on nose.

of the quadrilateral cartilage of the nasal septum.

These deformities when neglected result in marked depression of the bridge and marked alteration of the appearance of the dorsum of the nose.

PATHOLOGICAL ANATOMY

In cases of depression of the nasal bridge the pathological anatomical picture varies

2. Lateral view taken before plastic operation on nose. Illustrating an article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

*Department of Ophthalmology and Oto-Laryngology, Henry Ford Hospital, Detroit, Michigan.

with the cause of the condition. If in cases following intra-nasal abscess with supurative perichondritis which results in most cases in the loss of the yellow elastic cartilage of the septum which is absorbed, the result is a marked depression of the nasal distal to the ends of the nasal bones. The nasal bones are in good condition in these cases. The mucous membrane on the septum after these abscesses are healed are usually very thick with much new fibrous tissue formation. If the depression has been due to syphilitic gumma there is usually marked destruction and loss of tissue substance not only of the quadrilateral cartilage but the mucous membrane and the septum with considerable crusting and scabbing about the edges. In many cases the nasal bones have been affected by syphilitic periostitis with loss of osseous tissue. If this is the case there is much scarring with dense adhesions to the subcutaneous tissue and possibly the skin to the remainder of the bone which has been destroyed. This condition, from a restoration viewpoint, presents considerable difficulty in elevating the skin overlaying the remainder of the nasal arch. The pathological picture following fracture is one where few adhesions are present, usually a marked deflected and thickened septum but with a more or less normal mucous membrane unless degenerative changes have taken place as a result of nasal destructions but in general healthy tissues are present. In cases following submucous resection of the nasal septum with or without abscess there is usually a depression below the ends of the nasal bones though the bones themselves are healthy.

3. Front view after operation. Cartilage Transplant. Illustrating an article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

4. Side view taken after operation. Cartilage Transplant. Illustrating an article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

TYPES OF MATERIAL TO BE USED AS A PROSTHESIS

From time to time there have been numerous materials suggested as material for reconstruction of the nasal arch. Among those most frequently used are:

(1) Injection of paraffin subcutaneously.

(2) Autogenous transplants of bone, cartilage, or cartilage and bone.

(3) Celluloid, silver, gold, ivory, etc.

In Germany paraffin was first used in 1900 and for several years it had a great vogue in this country. Later its use fell in the hands of Charlatans who used it for elevating depressions of the cheeks, wrinkles about the face and forehead and in hernias. The best results were obtained by using paraffin which has a melting point between 110° and 115°. Harmon Smith[1] of New York, who was a strong advocate of this method, made a report several years ago based on a questionnaire sent to 41 physicians and which covered a series of 1252 cases which were not his own. He tabulated the statistics as follows: 1,000 cases were entirely successful, 104 results unsatisfactory. In two of the 104 blindness followed shortly after the operation. In 55 infection occurred and the paraffin

mass was extruded. In 22 the paraffin lay in the wrong location and in 7 the mass shifted. Since Smith's report operators of experience have seen many cases of paraffinomas. These have discouraged even the most enthusiastic for this method and at present I am sure very few operators of experience and judgment prefer the use of paraffin.

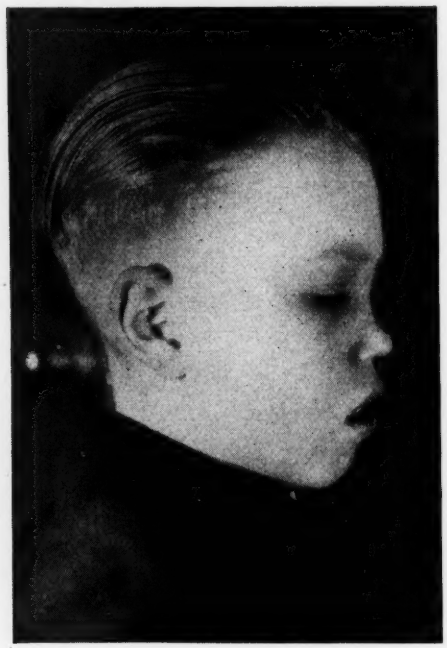
THE USE OF BONE

It is well recognized that successful bone transplants depends largely on the osteogenetic activities of other bones in which the implant is in contact. This is necessary for the continued viability of the graft. Opinions of rhinologists are at variance respecting the ultimate fate of bone grafts in nasal tissue. Carter[2] of New York, reports depressed nasal deformities corrected by bone prosthesis and show no clinical change after many years. He has had these radiographed and in his report the outer areas of the transplants are firm but the inner layers which are more or less remote from the circulation show osteoporosis. In his earlier experience Carter regarded firm periosteal contact of the transplant with the adjacent frontal and nasal bones as essential but later modified his views and in 1915 believed that bone denuded of its periosteum is better nourished by close contact with the tissues. Since there is no desire to produce new bone the osteogenetic function of the periosteum is not essential. With increased experience Carter again modified his views and now advocates the use of transplants consisting of one inch periosteum covered rib and one-half inch perichondreal covered cartilage. Such a transplant of cartilage and bone he believes should be placed where such tissues normally exist.

Ferris Smith[3], who had an extensive experience in the world war, believes that free grafts of bone with or without periosteum are slowly absorbed. Davis[4], of Baltimore, in a series of brilliant experimental studies on dogs to determine the comparative permanence of free bone and cartilage transplants found that bone and rib cartilage transplanted beneath the periosteum of the parietal bone and into the substance of the temporal muscles acted differently. Cartilage retains its original size while bone showed a tendency to absorption. The results have lead him to believe that free transplants in soft parts will eventually be absorbed, and if in contact with one end only it will undergo atrophy.

Gillies[5] holds a similar view in that he believes that bone grafted into various parts of the face and nose will eventually absorb often leaving a frame work of fibrous tissue in sufficient amount to retain the proper cosmetic appearance as originally planned. He believes that those who used bone for transplants will eventually turn to cartilage for prosthesis as a

5. Front view before cartilage transplant to nose. Illustrating an article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."



6. Side view before operation. Cartilage implant. Illustrating an article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

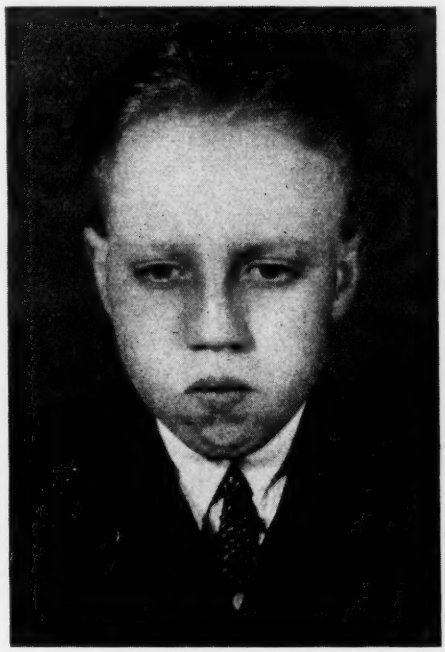
frame work for the nose. Nelaton[6] was the first to use rib cartilage transplants to supply a nasal prosthesis. His method was to transplant into the tissues of the forehead between the skin and the periosteum the proper piece of cartilage. After the proper length of time the transplant was enclosed in a pedicle flap which was swung around and then stitched to the nose.

TYPES OF CARTILAGE USED

The type of cartilage is important. Yellow elastic cartilage implants are absorbed quickly. There is insufficient time for fibrous tissue replacement. Cartilage of the Hyaline variety from the sternum or the rib is preferable. It is easier to obtain in large amounts and can be secured with or without the periosteum as the judgment of the individual operator dictates. The viability of this cartilage is great as it does not depend on contact with either bone or cartilage for its viability but secures its nourishment from the lymph of the tissues into which it has been transplanted.

Davis[4] has shown that the transplanted cartilage soon becomes surrounded by a zone of loose connected tissues with numerous blood vessels. The amount of vascularization depends on the length of time the transplant has been imbedded. Histological examinations of the removed transplants showed that the cartilage cells are normal and that there is little evidence of absorption, degeneration, or decrease in size of the transplant. Berkman believes that cartilage is preferable to bone as a supporting material in the nose, and like others does not believe that it is necessary to preserve the periosteum. Selfridge on the contrary reports a case in which he transplanted cartilage on three different occasions and each time it was absorbed but on the fourth was successful.

A summary of the foregoing opinions and conclusions as to the relative merits of bone and cartilage, it is generally agreed that cartilage is preferable to bone as a supporting material for the correction of depressions of the nasal bridge. In the minds of many operations, however, there is still some uncertainty as to the permanence of the transplants as the majority of the clinical cases are of far too short duration to make it possible to come to a positive conclusion.



7. Front view after operation for cartilage transplant in reconstruction of nasal bridge. Illustrating article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

8. Side view after operation. Cartilage implant. Illustrating article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

PRELIMINARY STUDY OF EACH CASE

When a patient presents himself for reconstruction work it is well to be sure that there is no evidence of chronic infection in the nose and throat such as sinusitis, rhinitis or chronic tonsillitis, syphilis or tuberculosis. A careful survey of the patient's general physiognomy is essential to properly evaluate the size and shape of the transplant which will be necessary to reconstruct the architecture of the nasal

bridge. It must be born in mind that the shape of the nose must be in proportion to the general facial physiognomy. A very high narrow nose is out of proportion when placed on a face where a broad nose would be more in harmony with other features. Cabinet sizes photographs with full profile and front view should be taken.

(1) It is well to X-ray the head with special reference to the facial and nasal bones, especially the profile view;

9. Front view just before operation began. Illustrating an article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

(2) A plaster paris model of the head and face should be made;

(3) A model in wax from the same mould should also be made as in (2).

When the plaster paris model is complete the rhinologist should build up in wax the type of nose which would be best suited to the other features. The wax prosthesis may then be removed from the model and laid aside to be later used as a guide for cutting and shaping the cartilage implant which is to be introduced at the time of operation. One of the main reasons why a careful study should be made of the face with special reference to wax and plaster models of the face is that later on patients often times are dissatisfied with what was done for them and they will make claims as to what their appearance was before operation. The wax model and plaster paris cast should be made before and after so that in case any suit is instituted against the operator this is very valuable evidence to be presented in court.

METHODS TO BE USED AT TIME OF OPERATION

Gillies[5] makes a vertical incision in the vestibule of the nostril near the junction of the skin and mucous membrane. The incisions are united by separating the columela at its attachment to the upper lip.

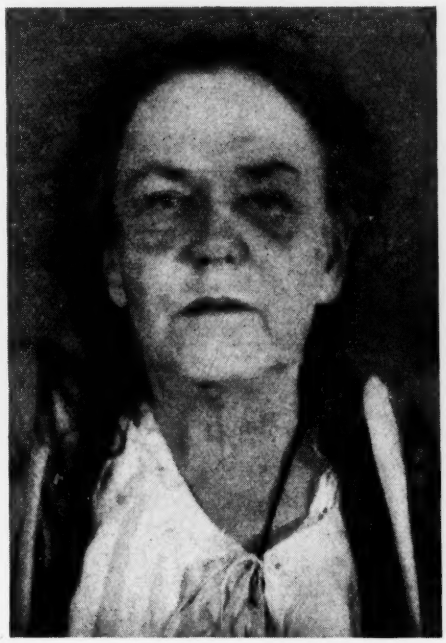
10. Side view taken before operation began. Illustrating an article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

The columela is then dissected free and then grasped by suitable forceps, then drawn upwards thereby exposing the free border of the septum. A tunnel is then made through the nasal arch as far as the infra glabella notch. The cartilage prosthesis is then introduced in the tunnel and the columela is then stitched into place.

Another method that is known as the lateral intranasal method. This was evolved to avoid external scaring. It has many disadvantages in that the technic is difficult and lateral displacement of the cartilage prosthesis cannot be avoided in certain cases. The original incision through the cartilage cannot be closed by sutures. This results in a greater liability to infection from the nasal secretions.

Third method, that of incision at the base of the nose at the infra glabella notch.

This incision is at right angles to the line of the bridge and is suitable in certain cases, especially those which already have some external scaring. From this incision with scissors curved on the flap, a tunnel is made beneath the skin of the bridge to the tip of the nose, the cartilage prosthesis which has previously been cut to the shape of the model is then introduced and pushed in place. The original wound is then sutured with silk stitches. This incision is an excellent one and possibilities of asepsis are unexcelled. The result often leaves an undesirable external ear.



11. Front view after operation. Cartilage implant. Illustrating an article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

12. Side view after cartilage implant to nose. Illustrating an article by Dr. W. T. Garretson on "Reconstruction of Nasal Bridge."

The best incision in my hands is that which is used by Lewis[7] for celluloid implants. He makes a vertical incision through the columna nasi separating the medial columns of the alar nasi cartilages. The lateral lips of the incision are then undercut to the nasal vestibule. With sharp scissors the nasal tip is undermined forming a hood. From this a tunnel is then made in the subcutaneous tissue over the nasal bridge to the infra glabella notch. With delicate retractors the lips of the incision are held apart and the cartilage prosthesis cut to the proper model is then introduced, at first on the side if the implant which is introduced is wide. When past the columnar incision the transplant is turned to position over the bridge of the nose. The so-called hood prevents displacement and extrusion of the cartilage and there is no tendency to lateral displacement. The original incision is then closed with two interrupted silk sutures without drainage or external splints. A little Collidion dressing is applied to the wound to protect it from nasal secretions. No other dressings are necessary.

This incision in my judgment is a most advantageous one from the standpoint of the alar cartilage in that it splints the two middle columna. It is not difficult to follow the contour of the nasal dorsum as there is little tendency to depart from the mid line. This is quite advantageous in that when the transplant is introduced there is no tendency for lateral displacement of the prosthesis. The tip cap or the so-called hood prevents extrusion of the transplant when swelling of the tissues occurs which inevitably follows any operation in this region.

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MICHIGAN'S HEALTH COMMISSION

SIXTH ANNUAL PUBLIC HEALTH CONFERENCE

Fifty out of 83 counties in Michigan were represented at the Sixth Annual Public Health Conference held in Lansing, December 1, 2 and 3, under the joint auspices of the Michigan Department of Health and the Michigan Public Health Association. A total of 291 health officers and public health nurses registered, the largest official attendance of any conference so far. Visitors brought the number at almost every session to well over 400. Public health nurses were in the majority but not as markedly so as at previous conferences, the percentage of health officers increasing this year.

Eaton County sent the first delegate, Ontonagon, Gogebic and Houghton sent their representatives the longest distances, and Wayne and Ingham tied for having the largest representation. Only five counties in the southern half of the state were not represented, and 20 counties in the northern half sent health officers or nurses.

"And so we have arrived at the end of an era," said Surgeon General Cumming, in discussing "Public Health From the Federal Standpoint." "Whether we like it or not, whether we have by heredity, education and environment, absorbed the Jeffersonian doctrine of individualism, with its preachment of the evils of too much government, or whether we have on the other hand absorbed the doctrine of socialism, we are confronted by the inexorable logic of facts that we have a public somewhat enlightened as to the value of preventive medicine and public health. The family physician whose lack of theoretical knowledge was often more than balanced by keen intuition and intimate knowledge of the patient and family history has given place in more settled communities, particularly, to professional treatment by men often unknown personally to the patient, and whose financial investments in necessary equipment and education necessitate business-like and expensive methods. We have a profession well organized in strong guilds, both state and national, and governments, local, state and national, somewhat awakened to the importance of public health measures against so-called preventable diseases. There is a general appreciation not only of the loss from death due to such diseases as tuberculosis, typhoid fever, malaria, and syphilis, but there is also a rapidly growing realization of the national loss consequent upon lessened efficiency due to ordinary preventable diseases, great cost to the state of mental deficiency due to such preventable causes, as syphilis, and to the number who because of preventable defects and diseases during the period of growth and development are unable to serve their country to the fullest extent in times of stress.****

"What is the present condition of public health? A few years ago not one of our 3,000 counties had a full time health officer, now there are three hundred odd and there would be more if competent men were available. The states with even fairly efficient departments of health could be counted on one's fingers while now all of our states have some organization and many of them such as yours have well organized departments. Federal activities were restricted to the enforcement of maritime quarantine in a few ports, the treatment of sick seamen, and aid to states in serious epidemics. The activities of the public health service now ramify into nearly every phase of activity throughout the country and health functions are scattered through other federal establishments. These are encouraging evidences of progress but there are many obstacles to be overcome. * * * *

Dr. George H. Ramsey, talking on "The Prevention of Diphtheria," stated that after a critical review of all the means at our disposal for the control of diphtheria, he had reached the conclusion that the only effective method was active immunization. Control of the diphtheria organisms can never be attained—it is probable that the percentage of carriers will not appreciably be diminished—so the solution is control of susceptible persons through active immunization.

Dr. O. P. Kimball, of Cleveland, speaking on "Endemic Goitre and Public Health," emphasized the fact that no authentic cases of harm resulting from the treatment of endemic goitre with iodin—chocolate

tablets or iodized salt—had ever been found. The few reported cases were probably coincidences, and were the observations of isolated individuals, with no scientific proof.

Dr. Kimball discussed the work being done in Michigan, Ohio, and Utah in noting the effect of preventive measures upon large groups of children, mentioning in this connection the recently created Federal Goitre Commission made up of three members, Dr. David Marine, a physician from the Mayo Clinic, and one from Utah. Switzerland's experience was also cited to prove the effectiveness and harmlessness of the use of iodin in the prevention of endemic goitre.

Dr. Edwin Bishop, of Lansing, described "The Health Service of the League of Nations" from the standpoint of actual observation abroad this last summer. He sketched briefly the plan of organization, —the Advisory Council, the Health Committee, and the Secretariat, outlining the functions of each and emphasizing the permanence and wide scope of the Secretariat's work.

Harris R. C. Wilson, D.D.S., head of the Cleveland Mouth Hygiene Association, discussed the mouth hygiene work from kindergarten to high school, stressing the necessity of early filling of carious teeth, and of teaching children not only habits of cleanliness but of proper foods also. Dr. Wilson's closing emphasis was upon nutrition during the prenatal period as the only sound basis for progress with either preschool or school children.

One point of interest in "Sewage Disposal for Large and Small Municipalities" by Langdon Pearse, was that the septic tank is nothing more than a settling basin, that the effluent is not in any sense comparable to drinking water. While the septic tank is an entirely satisfactory solution of the sewage disposal problem for small groups, it has limitations not recognized by its first enthusiastic salesmen. Contrary to a very popular conception, it is a sedimentation tank and nothing more.

Dr. B. Bernbaum discussed "Scarlet Fever," giving what was in the nature of a progress report on work still under way. Dr. Bernbaum stated that 116 scarlet fever cases had been Dick tested 28 days from onset of the disease, at the expiration of quarantine. To 1 S.T.D. (Skin Test Dose) approximately 99 per cent gave a negative reaction. To 2 S.T.D. about 88 per cent were negative, to 5 S.T.D. 74 per cent, and to 10 S.T.D. 51 per cent.

A group of persons who had not had scarlet fever, Dick positive, were given three immunization treatments of 500, and 2,000 and 20,000 S.T.D. of scarlet fever streptococcus toxin. They were Dick tested at 10 days, 3 months, and 7 months after the last treatment. To 1 S.T.D. 87 per cent were negative at 10 days, 94 per cent at 3 months, and 94 per cent at 7 months. To 2 S.T.D. the results were the same. To 5 S.T.D. 43 per cent were negative at 10 days, 64 per cent at 3 months, and 73 per cent at 7 months. To 10 S.T.D. 27 per cent were negative at 10 days, 45 per cent at 3 months, and 63 per cent at 7 months.

The results indicate that as great a degree of immunity can be conferred by treatments with scarlet fever streptococcus toxin as by the disease itself. It is interesting to note that the percentage of immunity is higher than with diphtheria toxin-antitoxin mixture.

WITH THE ENGINEERS

Stream pollution inspections were made in seven counties during November,—Arenac, Gratiot, Isabella, Oakland, Ottawa, Saginaw and Van Buren.

Sewage Treatment Plant reports were submitted to the department by Sparta, Croswell, Lowell, Rochester, Petoskey, Hastings and Grand Haven.

Eleven counties, Lapeer, Oceana, Tuscola, Livingston, Charlevoix, Wayne, Iron, Dickinson, Ingham, Macomb and Oakland were visited for inspections and conferences on Sewage Treatment Plants.

In water supply inspections, nine counties were visited,—Newaygo, Oakland, Kent, Grand Traverse, Emmet, Presque Isle, Alpena, Ottawa and Wayne. In addition, ten counties sent plans of water systems for examination,—Eaton, St. Joseph, Kalamazoo, Allegan, Osceola, Dickinson, Wayne, Macomb, Kent and Montcalm.

At the fall meeting of the Michigan Engineering Society, E. D. Rich, Director of the Bureau of Engineering, and John Helper gave a joint paper on "Stream Pollution in Michigan." Colonel Rich also attended the Conference of State Sanitary Engineers at Cleveland on Great Lakes Levels.

TO PHYSICIANS AND HEALTH OFFICERS

It has been satisfactorily demonstrated that persons can be actively immunized against scarlet fever by the administration

of Scarlet Fever Streptococcus Toxin. The period of immunization is not known, but it has been demonstrated that it will last at least two and one-half years.

January 1st, 1927, the laboratory of the Michigan Department of Health, Biologic Products Division, will begin distributing Scarlet Fever Streptococcus toxin for the Dick test, and Scarlet Fever Streptococcus toxin for active immunization. Directions for administering the toxin for the Dick test and for immunization will accompany each package.

Until further notice the Department will confine the distribution to physicians and health officers who agree to immunize only such persons who will be more or less under their observation, and who will agree to report at the end of the year on a re-Dick test of the patient.

DIPHTHERIA IMMUNIZATION

The diphtheria immunization unit from the Department gave Schick tests in Montcalm and Cass counties during November. Tests given one week are read the next. Approximately 3,900 persons were tested in Montcalm county, largely school and preschool children. Only two days of the Cass county schedule have been completed, with 483 persons tested and read. Report of the clinic findings as to efficacy of three toxin-antitoxin treatments in different age groups promises to be interesting. It will be compiled as soon as sufficient data has been collected.

ANOTHER EXAMPLE

On September 11, R— S—, a summer resort restaurant keeper of Rapid City, Michigan, died. The case was diagnosed at postmortem as diphtheria. The physician in charge missed the diagnosis as the woman in question was an old patient of his whom he had treated repeatedly for tonsillitis and quinsy. The death occurred 36 hours after the onset of the disease.

Investigation by Dr. Miller, health officer of Rapid City, revealed that there was illness in a family of transient berry-pickers, camped on the plains near Alden, Michigan. Children from this family had been peddling berries through the whole resort section. Other cases of diphtheria were traceable to this source of infection. Cultures made from convalescents in the family, sent to the Western Michigan Division laboratory of the Michigan Department of Health, came back positive for diphtheria.

While waiting for the culture reports, Dr. Miller put the family under quarantine. The family loaded their effects in the flivver and started for southern Michigan. Twenty-four hours later when the report was received from the Western Michigan Division laboratory as positive, Dr. Miller went back to confirm the quarantine and give prophylactic doses of antitoxin to anyone exposed, and found that they had left the country.

Inquiry as to the possible destination of the family indicated Muskegon as the probable point at which they would stop. Dr. Harrington, health officer, was called by phone. He finally located the family on a farm near Muskegon, confirmed the diagnosis, enforced quarantine, and no further cases were reported from this source of infection.

Predicating a toxin-antitoxin campaign on this occurrence, 100 per cent of the school children in four townships of Kalkaska county were immunized against diphtheria, and probably 50 per cent of the preschool children.

CHILD HYGIENE AND PUBLIC HEALTH NURSING ACTIVITIES

The field work in November is always interrupted by the Thanksgiving holiday, in fact, the whole week from the point of attendance is necessarily unsatisfactory.

Infant and preschool child clinics were held in the following counties: Otsego, Crawford, Roscommon, Missaukee, Lake and Oceana. Sixteen towns in these counties were reached with a total attendance of 239 children to whom examinations were given. In one town it was necessary to exclude many of the children who came, on account of an epidemic of whooping cough, but at the same time it was possible to give instruction to the mothers on prevention of communicable diseases.

Four nurses have been teaching Little Mothers' League classes in schools in Schoolcraft, Sanilac, Saginaw, Kalkaska, Missaukee, Monroe and Kalamazoo counties. There have been 208 classes taught with an attendance of 4,282 girls. This work, which consists of instruction in the care of babies and preschool children, is given to girls of from 11 to 16 years of age.

Women's classes, taught by a physician and a nurse, were held in various places in Mackinac county. Thirty lessons were given, with an attendance of 293, despite deep snow, mud and bad roads with long distances to be traveled to reach the places.

The midwife inspector has called on 100 midwives in Presque Isle, Alcona, Kent, Muskegon and Ottawa counties. In each instance instructions were given on the

need for cleanliness and the prophylactic care of the baby's eyes.

MICHIGAN PUBLIC HEALTH ASSOCIATION

At its annual meeting in Lansing, December 3, the Michigan Public Health Association elected the following officers:

President, R. C. Mahany, M. D., Owosso; Vice President, Miss Mable Morgan, R. N., Saginaw; Secretary-Treasurer, W. J. V. Deacon, M. D., Lansing; Representative to the A.P.H.A., R. M. Olin, M. D., Lansing.

Directors-at-Large: John Sundwall, M. D., Ann Arbor; Carl E. Buck, M. D., Detroit; R. J. Harrington, M. D., Muskegon; A. A. Hoyt, M. D., Battle Creek; Miss Mary Margaret Roche, R.N., Grand Rapids.

Members of the Association will be interested in the recent changes in the by-laws of the American Public Health Association affecting members in affiliated societies. Under this new ruling all members of the American Public Health Association who live in Michigan automatically become members of the Michigan Public Health Association, an affiliated society, without the payment of additional dues, the membership fee of $1.00 being paid through the American Public Health Association. Thus members of the Michigan Public Health Association who do not belong to the American Public Health Association, upon payment of their dues become affiliated members of the American Public Health Association.

Members of the American Public Health Association may either pay their dues direct to the Association or to the Secretary of the Michigan Public Health Association, Dr. W. J. V. Deacon, of Lansing.

There is much public health work being done in Michigan by non-official agencies and it would seem wise to co-ordinate all of this work under one general agency for the purpose of preventing duplication and lending more weight to their efforts.

OUR BIOLOGIC PRODUCTS

During the past 90 days, several letters have been received in the office of the Commissioner of Health, from practicing physicians stating that salesmen from Biologic houses have made statements that the product distributed by the State of Michigan is inferior to that sold by the Biologic Houses they represent.

The Commissioner believes that these statements are unauthorized by the management of the various commercial houses involved, and that the statements are made by irresponsible salesmen.

All biologic products distributed by the Michigan Department of Health are produced under United States Government license No. 99. The Department of Health has met every requirement of the Hygienic Laboratory, that commercial houses are required to meet.

The Michigan Department of Health can produce this material at less cost than a commercial house because there is no sales cost, less over-head, and the exchange can be held to a minimum.

PREVALENCE OF DISEASE

November Report

	October 1926	November 1926	November 1925	Av. 5 years
Pneumonia	239	363	496	372
Tuberculosis	554	242	399	409
Typhoid Fever	95	50	84	120
Diphtheria	792	710	474	994
Whooping Cough	431	492	564	352
Scarlet Fever	665	970	877	1,074
Measles	112	324	411	481
Smallpox	34	83	20	141
Meningitis	6	3	9	10
Poliomyelitis	32	6	13	24
Syphilis	1,473	1,308	986	859
Gonorrhea	1,187	912	850	823
Chancroid	20	10	6	10

CONDENSED MONTHLY REPORT

Lansing Laboratory, Michigan Department of Health

November, 1926

	+	−	+−	Total
Throat Swabs for Diphtheria	.....	.....	.....	1780
Diagnosis	115	529	.....	.....
Release	267	577	.....	.....
Carrier	11	237	.....	.....
Virulence Tests	20	24	.....	.....
Throat Swabs for Hemolytic Streptococci	.....	.....	.....	662
Diagnosis	181	284	.....	.....
Carrier	18	179	.....	.....
Throat Swabs for Vincent's	18	607	.....	625
Syphilis	.....	.....	.....	4912
Wassermann	3	.....	.....	.....
Kahn	786	4061	58	.....
Darkfield	1	3	.....	.....
Examination for Gonococci	148	1104	.....	1252
B. Tuberculosis	.....	.....	.....	448
Sputum	71	345	.....	.....
Animal Inoculations	5	27	.....	.....
Typhoid	.....	.....	.....	196
Feces	20	102	.....	.....
Blood Cultures	1	23	.....	.....
Urine	2	10	.....	.....
Widal	1	37	.....	.....
Dysentery	.....	.....	.....	45
Intestinal Parasites	.....	.....	.....	6
Transudates and Exudates	.....	.....	.....	125
Blood Examinations (not classified)	.....	.....	.....	624
Urine Examinations (not classified	.....	.....	.....	352
Water and Sewage Examinations	.....	.....	.....	640
Milk Examinations	.....	.....	.....	77
Toxicological Examinations	.....	.....	.....	5
Autogenous Vaccines	.....	.....	.....	2
Supplementary Examinations	.....	.....	.....	121
Unclassified Examinations	.....	.....	.....	487
Total for the Month	.....	.....	.....	12359
Cumulative Total (fiscal year)	.....	.....	.....	67154
Decrease over this month last year	.....	.....	.....	3904
Outfits Mailed Out	.....	.....	.....	14657
Media Manufactured, c.s.	.....	.....	.....	471100
Typhoid Vaccine Distributed, c.c.	.....	.....	.....	1530
Diphtheria Antitoxin Distributed, units	.....	.....	.....	41212000
Toxin Antitoxin Distributed, c. c.	.....	.....	.....	204110
Silver Nitrate Ampules Distributed	.....	.....	.....	3592
Examinations Made by Houghton Laboratory	.....	.....	.....	1289
Examinations Made by Grand Rapids Laboratory	.....	.....	.....	5079

EDITORIAL DEPARTMENT

EDITOR: Frederick C. Warnshuis, M. D., F. A. C. S.

ADDRESS ALL COMMUNICATIONS TO THE EDITOR—1508 G. R. NAT'L BANK BLDG., GRAND RAPIDS, MICH.

MINUTES OF THE EXECUTIVE COMMITTEE MEETING OF THE COUNCIL

The monthly meeting of the Executive Committee of the Council was held in Grand Rapids on Dec. 9, 1926. There were present:

Chairman Stone, Corbus, Bruce, LeFevre and Warnshuis.

1. The Executive Committee met with the officers of the Scientific Sections and some two hours were devoted to the discussion of the type of program for the Annual Meeting at Mackinac Island, 1927.

The following general plan was adopted —That the House of Delegates and Council conduct its business session on Thursday; that the Scientific Sections would hold section meetings on Friday and Saturday mornings between the hours of 9 a. m. to 1 p. m.; that the afternoon of these days be devoted to sports and pastime; that immediately following the dinners on Friday and Saturday evenings there be two or possibly three scientific addresses by invited distinguished guests. Section officers were to arrange programs for their section meetings utilizing such of the invited guests as they might desire to have participate in sectional programs.

2. The proposed Endowment Fund articles of organization, as prepared by the Grand Rapids Trust company, having been under consideration by each member of the Executive Committee, who has had a copy in his possession for the past month, were approved with one or two changes in phraseology and the secretary was directed to execute this agreement with the Grand Rapids Trust company.

3. In compliance with the Constitution and By-Laws the Executive Committee approved the appointments made by the President for the following committees:

Hospital and Charity Survey of the State—Richard R. Smith, Chairman, Grand Rapids; J. Walter Vaughan, Detroit; W. H. Marshall, Flint.

Medical History—C. B. Burr, Chairman, Flint; J. H. Dempster, Detroit; W. J. Kay, Lapeer; W. H. Sawyer, Hillsdale; J. D. Brook, Grandville.

4. Considerable time was devoted to the discussion of illegal practice and a policy outlined which the secretary was directed to observe in the handling of this health problem.

5. The secretary was directed to call a meeting of the representatives of the different organizations in the state that constitute the Legislative Bureau, to be held in Lansing on Dec. 16. This meeting to be called to order by the President, after which the members constituting this bureau were to perfect their own organization.

6. Upon motion of Dr. Bruce, supported by Dr. Corbus the Annual Meeting of the Council is to be held in Ann Arbor on Jan. 24, 1927. The secretary to arrange with the Joint Committee on Public Health Education for a noon meeting, and also to arrange the details for the Conference Meeting to be held in the evening. It was the sense of the Executive Committee that the chairman of the Council should preside at the Conference Meeting on the evening of Jan. 24, 1927.

7. The Executive Committee took up the question of the advisability of the retention of Mr. Harvey George Smith, executive secretary, whose contract expires with the end of the year. This matter was considered informally at the last Executive Committee Meeting, and was laid over for further consideration until this meeting.

There was no question in the mind of this committee but that Mr. Smith had done an excellent work in these last two years, especially in planning for the post-graduate conferences. His work with the various County Societies has, we think, been productive of some results in stimulating them to better work. However a careful survey of the matter leads us to feel that there is little to be gained by continuous personal visits to the various counties, certainly not enough to justify the expense. His loss will be felt most largely in the running of the post-graduate conferences, but again, in view of the fact that these conferences are now very well established in the general plan, we

believe that their activities may be satisfactorily directed from the main office, with the assistance of the councilor of the district, and do not feel justified in further assuming the considerable expense attached. We have therefore decided not to contract with Mr. Smith for another year.

As an expression of our appreciation of his satisfactory work, the Executive Committee has voted him an honorarium of $500.

The meeting adjourned at 10:45 p. m.

THE NEW HOME OF WAYNE COUNTY MEDICAL SOCIETY

The year 1927 promises to be an epoch in the history of the Wayne County Medical Society.

Early in January, the society moves into its new home in the Maccabees building from the old location on High street, occupied since 1910.

For several years it has been apparent that the old building had outlived its usefulness but not until recently were the members able to agree on a new home that would meet the demands of an ever increasing membership.

With the completion of the magnificent Maccabees building a location was found which met the requirements of the society.

This building erected at a cost of $2,500,000 is 14 stories in height, adjacent to the Library and Art Museum and is in Detroit's new art center. It is on the main thoroughfare of the city—Woodward avenue—and within a miles' radius of many of the large hospitals.

One of the interesting features of the building is a broadcasting station which can be utilized in furthering medical education throughout the state.

The club rooms of the society are located on the 11th floor facing Cass avenue and reached by six signal control passenger elevators.

The club will consist of a large lounge, council room, committee room, trustees room, secretaries' office, main dining room, kitchen, club dining room (Rathskeller), coat room, lavatory, telephone booths and two roof gardens.

The four principal rooms namely lounge, committee, council and private dining room have been specially fitted with recessed doors so that when occasion demands they may be converted into one large room.

The entire equipment, including furniture. floor coverings, hangings and lighting fixtures, are being specially made by Tuttle & Clark, Detroit, under the personal supervision of their Mr. George W. Turner, interior decorator.

Special designs have been made by the artists employed with Tuttle & Clark for the furniture for the dining rooms and large lounge room.

Lounge room to be equipped with easy couches, davenports and special chairs. These pieces are selected according to the color scheme of lacquer red, old ivory and verde green.

Glass curtains of English casement cloth on traverse cords and pulleys will be

Maccabee Building

furnished for all windows. Over these are to hang rich damask over-draperies from ceiling line to floor.

Private dining room has been particularly planned to carry out the Pompeian style. The tables are constructed with green bronze bases, polished walnut tops. Chairs for these tables are upholstered in Spanish leather, mottled in green and tan.

Hangings for the windows of this room are of Italian red brocade, tied in with the special colors of floor covering.

Club dining room—The furniture for this room is of the English style, constructed specially carved and to design, using weathered oak finish. The floor of the club dining room is to be covered with

special tile linoleum of old red with moss green inserts.

Special attention has been given to the furnishings of the secretary's office and trustee's room.

The club dining room will be used daily by society members only, while the private dining room will be reserved for those who wish to bring ladies or friends. The latter room will also be used for formal dinners and luncheons.

The complete settings for all this floor have an influence of old English and Pompeian styles. Color schemes have been so arranged as to completely harmonize throughout.

The floor coverings for all spaces is made of one design and quality of lacquer red mist coloring.

The contract for the kitchen equipment has been given to the Michigan Store Fixture company, at a cost approximating $1,700. This assures the society of a most complete and up-to-date kitchen.

The linens, silver, glassware and china will be furnished by Mr. Young—caterer, who with a competent staff will have charge of the dining rooms and kitchen.

No expense has been spared in considering the comfort and convenience of members. With this in view the club will contain an appropriate medical library and a selection of leading medical journals.

The meetings of the society will be held in the large auditorium, which has a seating capacity of 750 and is located on the main floor of the building.

Adjoining the auditorium a large cloak room under the supervision of paid attendants will be at the disposal of doctors.

The parking question—always an important one—will be greatly improved at the new location.

After long deliberation, much thought and an expenditure of $20,000 the society feels that it has provided for its members the last word in a Medical Society Home; a place that will reflect credit on Wayne County Medical Society, and lend dignity to the medical profession where members will be proud to entertain visitors and friends.

Dr. J. Albert Kimzey,
Chairman, House Com., Wayne County Society.

COUNCIL MEETING

The regular mid-winter session of the council will be held in the Michigan Union, Ann Arbor, Jan. 24 and 25, 1927. The Council will meet with the Joint Committee on Public Health Education at 12 M., fast time, Jan. 24. The first session of the Council will be called at 2:30 p. m. The Council and invited representatives from our Medical Colleges, Department of Health and Board of Registration will meet at a dinner meeting at 6 p. m. The Second Session of the Council will be held at 9 a. m., Jan. 25.

R. C. Stone, Chairman,
F. C. Warnshuis, Secretary.

PHYSICAL EXAMINATIONS

There is scarcely a medical publication but that stresses the importance of periodical physical examintaion of the apparently well. Whenever public health or disease prevention is discussed in lay editorials the need and importance of such a physical examination is stressed. Slowly but with increasing rapidity the public is being educated upon the subject. In increasing numbers they are wending their way to doctor's offices. It is the concern of the American Medical Association and of your State Society that every doctor shall further the movement by conducting such examinations in a thorough and systematic manner, properly evaluate the findings and to render indicated advice. That is the profession's responsibility.

A representative committee of the A. M. A. after months of labor have formulated a standard examination blank. The same committee has compiled a manual that will guide and aid doctors in making the examination. This manual has been distributed to every member of our State Society. To still further expedite the work we now announce that we have made arrangements with a reliable stationery firm to supply these blanks together with an indexed loose leaf binder for filing. This makes for a system that is complete. compact, and can be kept in the drawer of your desk. The price for 100 blanks and folder is $5.75.

Once more we urge that when persons come to you for a physical examination that you cause such an examination to be thorough and inclusive. Second, that you record your findings on this standard blank, following the manual of the A. M. A. The degree in which every doctor acquits himself of this type of service which the public is demanding will cause their continuance to seek this service from the individual doctor. If you fail to meet the public's demand then it may confidently be expected that they will look to institutions and clinics for this service. We repeat—be thorough, efficient and systematic. Utilize the blank that has been approved and formulated by the American Medical Association.

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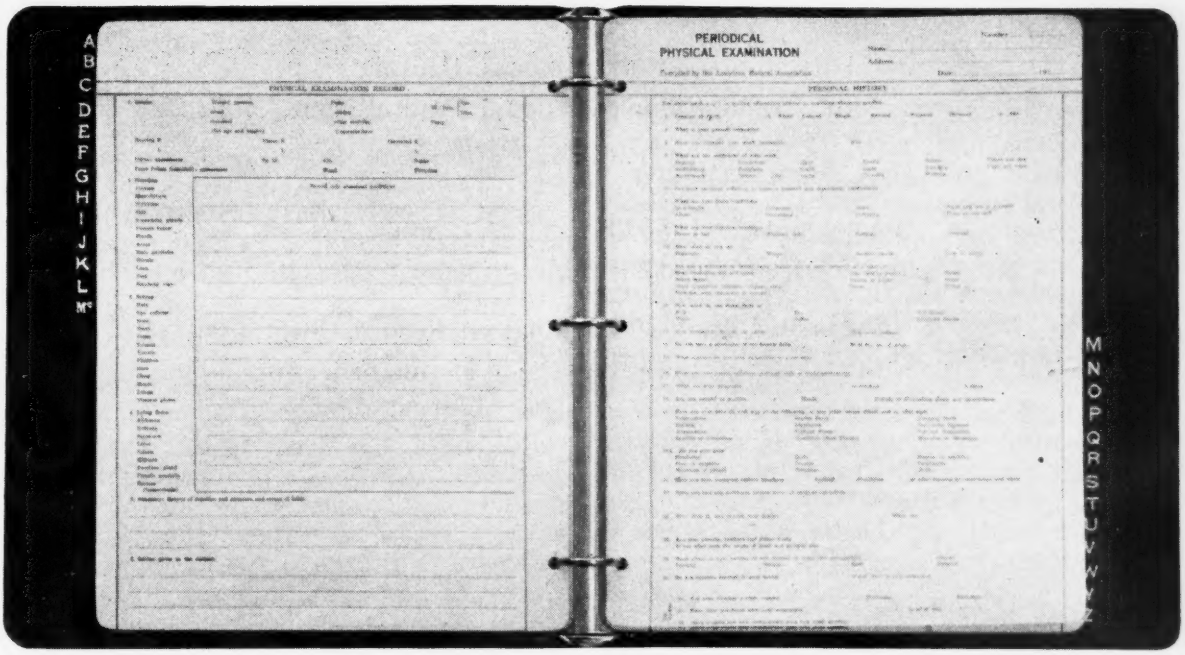

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ON TO MACKINAC ISLAND

Our 1927 Annual Meeting will be held on Mackinac Island on the days of June 16, 17 and 18.

On December 9 a joint conference of chairmen and secretaries of all the Scientific Sections was held and the details of our program were outlined as follows:

Thursday, June 16—

House of Delegates.

Friday, June 17—

9 a. m. to 1 p. m.—Section Meetings; 1 to 6 p. m.—Sports and Pastimes; 7 p. m. —Formal Dinner as guests of the Grand Hotel to be followed by the president's annual address and two scientific addresses by invited guests; 10 p. m. entertainment in hotel, theater and ballroom.

Saturday, June 18—

9 a. m. to 1 p. m.—Section Meetings; 1 to 6 p. m.—Sports and Pastimes: 7:15 p. m.—Scientific Program; three addresses by invited guests; 10 p. m.—Entertainment provided by hotel management.

Sunday, June 19—

Recreation—Special trains and boat so as to reach home early Monday morning.

Mackinac Island needs no description. It is a famed summer resort now arresting increased attention because of having been selected as the place for the meeting place of state governors and possibly as the summer vacation home of President Coolidge.

It is purposed to make our 1927 meeting one of excellent scientific interest and also to afford oportunity for recreation and wholesome pleasure. The entire Grand Hotel is under reservation and is at our complete disposal. Two golf courts, several tennis courts, quoit courts, heated swimming pool as well as many beautiful drives and historical points provide wonderful opportunity for out door entertainment. At no time have we had so enticing an environment for our annual meeting.

June is five months distant, still we want every member to bear this coming meeting in mind and to plan to be present. The ladies, surely we want them to accompany you and the kiddies, big and little, too.

Succeeding issues will contain additional announcements—mark the dates June 16, 17, 18 and 19.

DUES

Your 1927 dues are now payable to your County Secretary. County Secretaries will remit your state dues to the State Sectary. Your membership certificate will be mailed from the state office. Incidently we have enlarged your state certificate so as to give it more prominence when displayed in your office. It will come to you in a large 8x11 envelope containing the wording: "This envelope contains your Membership Certificate." We urge its framing and display for it certifies to your patients that you are affiliated with the accredited medical organization of your county.

Your local secretary renders a vast amount of gratuitous service to you and your local society. Evidence your appreciation by relieving him of a dunning job. Hand him a check for your dues, or mail it to him, during the first week of 1927. Pay your dues promptly.

OBSTETRICS

We hear much regarding poor obstetrical service. Blame is laid at the door of doctors. Governmental and lay associations and clinics seek to remedy the alleged situation and maternal enactments are sought in state and national legislative bodies to improve conditions and provide pre-and natal care.

With the assistance of the State Commission on Health, we have secured some Michigan statistics and submit them for our members review and study.

Facts can be read into these statistics as well as out of them. There are instances in which apparently doctors of certain counties are rendering poor obstetrical care. On the other hand the doctors of these counties cannot always be credited with the blame. Some of the adverse percentages may be due to two factors—midwife attendance or the bringing into that county the complicated cases of adjacent counties that are without hospitals. The blame cannot invariably be placed at the door of the doctor.

These tables will serve as an additional reason for consideration of the subject. County Societies should study and survey existing maternal service in their counties. Have a special committee study the problem. If there are local factors that can be improved it is your organization's obligation to bring in indicated recommendations. We shall be pleased to receive reports as to the results that attend your investigations and study.

BIRTHS

	STATE AND COUNTIES	1921	1922	1923	1924	1925	Total Five Years	Average Five Years	Average Rate Per 100,000 Population
	STATE	96,035	90,042	93,956	98,187	98,983	476,203	95,241	24.7
1	Alcona	158	158	146	125	97	684	137	22.4
2	Alger	233	206	224	243	239	1,145	229	20.7
3	Allegan	928	876	825	858	788	4,275	855	22.5
4	Alpena	503	498	496	512	422	2,431	486	24.1
5	Antrim	318	273	255	237	259	1,342	262	22.7
6	Arenac	205	207	177	195	156	940	188	19.7
7	Baraga	165	157	134	203	180	839	168	20.1
8	Barry	456	449	405	407	402	2,119	424	19.5
9	Bay	1,830	1,665	1,537	1,633	1,541	8,206	1,641	23.2
10	Benzie	174	152	153	150	157	786	157	22.6
11	Berrien	1,497	1,451	1,447	1,577	1,452	7,424	1,485	22.4
12	Branch	454	472	415	399	394	2,134	427	17.7
13	Calhoun	1,522	1,398	1,434	1,454	1,546	7,354	1,471	18.8
14	Cass	460	391	362	357	349	1,919	384	18.6
15	Charlevoix	421	428	398	324	306	1,877	375	23.7
16	Cheboygan	419	356	331	324	301	1,731	346	24.6
17	Chippewa	742	668	601	595	577	3,183	637	25.2
18	Clare	258	247	178	175	169	1,027	205	24.6
19	Clinton	541	537	455	514	459	2,506	501	21.3
20	Crawford	121	114	110	114	104	563	113	26.3
21	Delta	985	921	883	859	797	4,445	889	28.1
22	Dickinson	546	553	535	775	973	3,382	676	34.4
23	Eaton	628	592	588	570	569	2,947	589	19.8
24	Emmet	415	401	377	349	359	1,901	380	24.1
25	Genesee	3,485	3,226	3,776	4,169	3,878	18,534	3,707	23.9
26	Gladwin	249	258	199	163	179	1,048	210	22.9
27	Gogebic	1,005	871	865	835	834	4,410	882	23.8
28	Grand Traverse	424	385	349	327	374	1,859	372	19.1
29	Gratiot	874	829	651	785	704	3,843	769	21.2
30	Hillsdale	568	511	506	493	477	2,555	511	18.0
31	Houghton	1,429	1,259	1,120	1,108	985	5,901	1,180	16.3
32	Huron	994	957	828	820	797	4,396	879	26.4
33	Ingham	2,068	1,902	2,081	2,268	2,321	10,640	2,128	23.3
34	Ionia	739	649	621	645	682	3,336	667	19.7
35	Iosco	204	198	179	166	163	910	182	21.7
36	Iron	575	487	525	467	452	2,506	501	20.9
37	Isabella	685	585	550	537	557	2,914	583	25.4
38	Jackson	1,645	1,437	1,526	1,609	1,535	7,752	1,550	19.4
39	Kalamazoo	1,847	1,724	1,695	1,772	1,666	8,704	1,741	23.0
40	Kalkaska	138	158	114	119	125	654	131	23.0
41	Kent	4,640	4,509	4,688	4,909	5,071	23,817	4,763	25.0
42	Keweenaw	179	112	121	116	107	635	127	19.9
43	Lake	108	81	101	83	84	457	91	20.1
44	Lapeer	651	593	528	545	544	2,861	572	21.8
45	Leelanau	225	219	184	201	172	1,001	200	22.1
46	Lenawee	1,119	1,029	975	955	949	5,027	1,005	20.7
47	Livingston	371	362	320	315	348	1,716	343	19.2
48	Luce	131	132	137	137	114	651	130	18.8
49	Mackinac	247	239	221	202	209	1,118	224	27.8
50	Macomb	1,027	1,004	1,132	1,408	1,486	6,057	1,211	30.4
51	Manistee	459	407	388	347	353	1,954	391	18.7
52	Marquette	1,166	1,039	1,024	1,054	962	5,245	1,049	22.3
53	Mason	466	451	431	385	385	2,118	424	21.3
54	Mecosta	465	425	417	394	358	2,059	412	23.1
55	Menominee	638	644	554	569	576	2,981	596	24.9
56	Midland	520	429	430	418	430	2,227	445	21.0
57	Missaukee	274	261	207	235	190	1,167	233	25.5
58	Monroe	893	833	883	938	995	4,542	908	23.2
59	Montcalm	693	632	638	576	538	3,077	615	19.9
60	Montmorency	114	88	101	97	88	488	98	22.4
61	Muskegon	1,829	1,618	1,876	1,873	1,824	9,020	1,805	25.7
62	Newaygo	388	420	339	337	328	1,812	362	20.6
63	Oakland	2,487	2,358	2,670	3,110	3,459	14,084	2,817	27.4
64	Oceana	495	415	353	375	328	1,966	393	25.2
65	Ogemaw	230	207	171	177	161	946	189	24.1
66	Ontonagon	267	277	212	233	244	1,233	247	17.7
67	Osceola	375	355	311	325	288	1,654	331	21.5
68	Oscoda	47	53	50	32	35	217	43	24.1
69	Otsego	188	143	162	143	121	757	151	21.5
70	Ottawa	1,226	1,214	1,241	1,234	1,176	6,091	1,218	24.9
71	Presque Isle	393	386	374	325	358	1,836	367	28.5
72	Roscommon	45	40	46	42	51	224	45	22.1
73	Saginaw	2,491	2,252	2,321	2,456	2,302	11,822	2,364	22.6
74	Sanilac	827	780	754	707	681	3,749	7,410	23.4
75	Schoolcraft	259	257	223	221	209	1,169	234	21.8
76	Shiawassee	908	773	805	846	807	4,139	828	22.2
77	St. Clair	1,486	1,418	1,343	1,432	1,430	7,109	1,422	23.4
78	St. Joseph	562	542	535	605	553	2,797	559	20.1
79	Tuscola	815	820	716	659	726	3,736	747	22.1
80	Van Buren	665	568	612	596	590	3,031	606	19.5
81	Washtenaw	1,281	1,158	1,312	1,312	1,350	6,413	1,283	24.8
82	Wayne	32,994	31,451	34,550	37,579	39,229	175,803	35,161	28.7
83	Wexford	483	442	449	452	449	2,275	455	24.3

MATERNAL MORTALITY

	STATE AND COUNTIES	1921	1922	1923	1924	1925	Total Five Years	Average Five Years	Average Rate Per 100,000 Population
	STATE	605	551	584	636	629	3,005	601	6.3
1	Alcona	1	1	.....	3	1	6	1	7.3
2	Alger	.....	.....	1	2	1	4	1	4.4
3	Allegan	5	5	5	3	4	22	4	4.7
4	Alpena	6	1	3	3	4	17	3	6.2
5	Antrim	1	2	1	2	.....	6	1	3.8
6	Arenac	.....	2	.....	3	1	6	1	5.3
7	Baraga	1	1	1	3	2	8	2	11.9
8	Barry	5	4	.....	1	3	13	3	7.1
9	Bay	10	7	7	8	5	37	7	4.3
10	Benzie	.....	.....	.....	2	1	3	1	6.4
11	Berrien	5	6	11	8	7	37	7	4.7
12	Branch	6	2	.....	3	5	16	3	7.0
13	Calhoun	13	10	7	10	16	56	11	7.5
14	Cass	3	1	6	3	5	18	3	7.8
15	Charlevoix	1	2	4	.....	2	9	2	5.3
16	Cheboygan	3	4	3	1	1	12	2	5.8
17	Chippewa	3	1	2	5	1	12	2	3.1
18	Clare	1	2	.....	.....	1	4	1	4.9
19	Clinton	3	5	3	3	4	18	4	8.0
20	Crawford	1	.....	1	.....	1	3	1	8.8
21	Delta	4	5	7	6	2	24	5	5.6
22	Dickinson	5	3	5	6	6	25	5	7.4
23	Eaton	7	5	1	3	6	22	4	6.8
24	Emmet	11	8	3	5	9	36	7	18.4
25	Genesee	19	15	22	26	28	110	25	6.7
26	Gladwin	8	2	.....	1	1	12	2	9.5
27	Gogebic	5	.....	10	7	3	25	5	5.7
28	Grand Traverse	10	5	6	2	3	26	5	13.4
29	Gratiot	7	5	4	5	4	25	5	6.5
30	Hillsdale	3	3	2	2	1	11	2	3.9
31	Houghton	9	9	5	12	8	43	9	7.6
32	Huron	6	5	6	2	4	23	5	5.7
33	Ingham	14	9	12	16	14	65	13	6.1
34	Ionia	2	6	4	5	2	19	4	6.0
35	Iosco	.....	1	1	.....	2	4	1	5.5
36	Iron	4	3	6	2	2	17	3	6.0
37	Isabella	5	5	5	3	5	23	5	8.6
38	Jackson	10	7	8	9	8	42	8	5.2
39	Kalamazoo	14	19	19	11	14	77	15	8.6
40	Kalkaska	.....	3	1	2	1	7	1	7.6
41	Kent	26	30	25	28	18	127	25	5.2
42	Keweenaw	.....	2	.....	1	.....	3	1	7.9
43	Lake	.....	.....	.....	.....	1	1	1	11.0
44	Lapeer	5	4	5	5	2	21	4	7.0
45	Leenanau	1	.....	.....	1	1	3	1	5.0
46	Lenawee	6	4	7	6	4	27	5	5.0
47	Livingston	4	1	1	2	2	10	2	5.8
48	Luce	.....	1	1	1	.....	3	1	7.7
49	Mackinac	1	.....	2	1	.....	4	1	4.5
50	Macomb	4	6	6	4	11	31	6	5.0
51	Manistee	3	2	3	2	3	13	3	7.7
52	Marquette	11	5	4	11	6	37	7	6.7
53	Mason	4	3	.....	.....	2	9	2	4.7
54	Mecosta	5	5	2	2	7	21	4	9.7
55	Menominee	1	2	1	2	2	8	2	3.4
56	Midland	3	1	2	2	3	11	2	4.5
57	Missaukee	1	3	1	1	.....	6	1	4.3
58	Monroe	4	3	5	2	3	17	3	3.3
59	Montcalm	2	3	8	6	6	25	5	8.1
60	Montmorency	.....	.....	2	.....	.....	2	1	10.2
61	Muskegon	4	11	9	8	16	48	10	5.5
62	Newaygo	.....	7	4	3	1	15	3	8.3
63	Oakland	17	10	13	12	15	67	13	4.6
64	Oceana	3	4	3	3	1	14	3	7.6
65	Ogemaw	1	1	.....	.....	.....	2	1	5.3
66	Ontonagon	3	3	1	.....	1	8	2	8.1
67	Osceola	6	4	4	1	7	22	4	12.1
68	Oscoda	1	.....	.....	.....	.....	1	1	23.3
69	Otsego	2	2	.....	1	1	6	1	6.6
70	Ottawa	3	7	5	11	2	28	6	4.9
71	Presque Isle	3	4	5	1	2	15	3	8.2
72	Roscommon	.....	1	.....	.....	1	2	1	22.2
73	Saginaw	11	16	13	19	16	75	15	6.3
74	Sanilac	10	8	4	1	5	28	6	0.8
75	Schoolcraft	1	.....	.....	3	2	6	1	4.3
76	Shiawassee	4	7	3	6	5	25	5	6.0
77	St. Clair	10	7	8	14	13	52	10	7.0
78	St. Joseph	2	2	7	4	2	17	3	5.4
79	Tuscola	3	3	4	2	1	13	3	4.0
80	Van Buren	.....	1	1	4	3	9	2	3.3
81	Washtenaw	11	8	11	13	9	52	10	7.8
82	Wayne	214	196	227	263	263	1,163	233	6.6
83	Wexford	4	.....	5	2	4	15	3	6.6

STILLBIRTHS

STATE AND COUNTIES

		1921	1922	1923	1924	1925	Total Five Years	Average Five Years	Average Rate Per 100,000 Population
	STATE	3,628	3,779	3,657	3,703	3,670	18,438	3,687	38.7
1	Alcona	2	3	10	7	3	25	5	36.5
2	Alger	4	5	7	5	4	25	5	21.8
3	Allegan	30	42	29	34	34	169	34	39.8
4	Alpena	12	16	16	15	28	87	17	35.0
5	Antrim	13	11	14	14	13	65	13	49.6
6	Arenac	7	6	5	3	5	26	5	26.6
7	Baraga	3	11	6	2	6	28	6	35.7
8	Barry	18	26	13	11	9	77	15	35.4
9	Bay	86	65	51	70	68	340	68	41.4
10	Benzie	2	7	3	8	7	27	5	31.8
11	Berrien	40	47	42	50	40	219	44	29.6
12	Branch	17	10	14	6	16	63	13	30.4
13	Calhoun	53	59	52	51	56	271	54	36.7
14	Cass	15	22	10	10	18	75	15	39.1
15	Charlevoix	18	17	7	8	16	66	13	34.7
16	Cheboygan	17	23	22	13	8	83	17	49.1
17	Chippewa	28	31	20	22	19	120	24	37.7
18	Clare	6	14	8	11	4	43	9	43.9
19	Clinton	19	17	12	13	21	82	16	31.9
20	Crawford	4	6	4	4	6	24	5	44.2
21	Delta	35	35	37	35	38	180	36	40.5
22	Dickinson	16	13	18	29	25	101	20	29.6
23	Eaton	22	24	20	18	17	101	20	34.0
24	Emmet	20	16	21	8	25	90	18	47.4
25	Genesee	146	142	142	194	154	778	156	42.1
26	Gladwin	14	6	18	10	1	49	10	47.6
27	Gogebic	31	29	29	29	17	135	27	34.6
28	Grand Traverse	9	14	15	8	15	61	12	32.3
29	Gratiot	34	32	18	27	26	137	27	35.1
30	Hillsdale	23	23	12	12	11	81	16	31.3
31	Houghton	46	49	50	29	49	223	45	38.1
32	Huron	41	24	24	18	21	128	26	29.6
33	Ingham	76	70	87	69	58	360	72	33.8
34	Ionia	23	25	22	19	20	109	22	33.0
35	Iosco	5	5	10	6	4	30	6	33.0
36	Iron	12	12	12	15	10	61	12	24.0
37	Isabella	18	23	14	14	16	85	17	29.2
38	Jackson	70	65	53	65	56	309	62	40.0
39	Kalamazoo	55	53	59	62	72	301	60	34.5
40	Kalkaska	9	7	6	5	5	32	6	45.8
41	Kent	174	142	168	183	168	835	167	35.1
42	Keweenaw	11	6	5	3	5	30	6	47.2
43	Lake	2	3	6	2	2	15	3	33.0
44	Lapeer	24	25	17	18	23	107	21	36.7
45	Leelanau	4	3	7	6	7	27	5	25.0
46	Lenawee	28	53	33	34	42	190	38	37.8
47	Livingston	14	14	14	7	10	59	12	35.0
48	Luce	1	4	5	4	5	19	4	30.8
49	Mackinac	2	8	7	7	7	37	6	26.8
50	Macomb	33	40	34	36	46	189	38	31.4
51	Manistee	11	22	11	9	7	60	12	30.7
52	Marquette	58	46	35	39	35	213	43	41.0
53	Mason	18	24	13	14	19	88	18	42.5
54	Mecosta	14	23	10	10	13	70	14	34.0
55	Menominee	16	23	26	30	18	113	23	38.6
56	Midland	22	6	15	8	15	66	13	29.2
57	Missaukee	8	9	6	5	4	32	6	25.8
58	Monroe	24	20	17	17	42	120	24	26.4
59	Montcalm	26	19	27	17	18	107	21	34.1
60	Montmorency	4	7	2	4	5	22	4	40.8
61	Muskegon	97	64	83	68	49	361	72	39.9
62	Newaygo	10	17	19	15	15	76	15	41.4
63	Oakland	94	102	89	116	120	514	103	36.6
64	Oceana	11	16	19	10	22	78	16	40.7
65	Ogemaw	5	14	5	8	7	39	8	42.3
66	Ontonagon	12	18	12	9	6	57	11	44.5
67	Osceola	20	19	12	11	21	83	17	51.4
68	Oscoda	.....	2	.....	.....	4	6	1	23.3
69	Otsego	8	10	8	3	3	32	6	39.7
70	Ottawa	27	37	35	37	39	175	35	28.7
71	Presque Isle	9	14	9	10	17	59	12	32.7
72	Roscommon	.....	3	2	1	1	7	1	22.2
73	Saginaw	90	91	81	78	81	421	84	35.5
74	Sanilac	33	29	35	22	31	150	30	4.0
75	Schoolcraft	10	6	11	9	7	43	9	38.5
76	Shiawassee	28	28	28	36	39	159	32	38.6
77	St. Clair	81	77	59	68	60	345	69	48.5
78	St. Joseph	18	13	11	17	15	74	15	26.8
79	Tuscola	31	22	29	19	32	133	27	36.1
80	Van Buren	18	25	15	23	12	93	19	31.4
81	Washtenaw	57	54	61	48	47	267	53	41.3
82	Wayne	1,359	1,504	1,559	1,593	1,507	7,522	1,504	42.8
83	Wexford	17	12	12	20	23	84	17	37.4

PUERPERAL SEPSIS

	STATE AND COUNTIES	1921	1922	1923	1924	1925	Total Five Years	Average Five Years	Average Rate Per 100,000 Population
	STATE	265	208	190	165	174	1,002	200	5.2
1	Alcona	.....	1	.....	1	.....	2	0	.....
2	Alger	.....	.....	.....	.....	1	1	0	.....
	Allegan	3	2	.....	1	1	7	1	2.6
4	Alpena	2	.....	1	2	1	6	1	5.6
5	Antrim	1	2	.....	2	.....	5	1	8.7
6	Arenac	.....	1	.....	.....	.....	1	0	.....
7	Baraga	1	.....	.....	1	1	3	1	12.0
8	Barry	3	.....	.....	1	.....	4	1	4.6
9	Bay	5	2	2	3	.....	12	2	2.8
10	Benzie	.....	.....	.....	.....	1	1	0	.....
11	Berrien	2	2	2	2	3	11	2	3.0
12	Branch	4	2	.....	1	.....	7	1	4.1
13	Calhoun	5	4	2	2	6	19	4	5.1
14	Cass	.....	1	2	1	3	7	1	4.8
15	Charlevoix	.....	1	1	.....	2	4	1	6.3
16	Cheboygan	2	2	.....	.....	.....	4	1	7.1
17	Chippewa	1	1	.....	.....	.....	2	0	.....
18	Clare	1	2	.....	.....	1	4	1	12.0
19	Clinton	2	1	1	.....	1	5	1	4.3
20	Crawford	.....	.....	.....	.....	1	1	0	.....
21	Delta	.....	2	3	1	1	7	1	3.2
22	Dickinson	1	2	1	1	2	7	1	5.1
23	Eaton	3	4	.....	1	3	11	2	6.7
24	Emmet	.....	2	1	1	2	6	1	6.3
25	Genesee	6	7	4	11	7	35	7	4.5
26	Gladwin	2	.....	.....	.....	.....	2	0	.....
27	Gogebic	2	.....	4	4	1	11	2	5.4
28	Grand Traverse	6	1	1	.....	.....	8	1	5.1
29	Gratiot	4	1	1	1	.....	7	1	2.8
30	Hillsdale	2	2	.....	.....	.....	4	1	3.5
31	Houghton	4	.....	1	3	2	10	2	2.8
32	Huron	4	1	1	.....	.....	6	1	3.0
33	Ingham	7	5	2	4	3	21	4	4.4
34	Ionia	.....	2	1	.....	.....	3	1	2.9
35	Iosco	.....	.....	.....	.....	.....	.....	.....	.....
36	Iron	1	2	4	.....	.....	7	1	4.2
37	Isabella	2	2	1	.....	.....	5	1	12.4
38	Jackson	3	2	2	3	3	13	2	2.5
39	Kalamazoo	8	7	6	.....	2	23	4	5.3
40	Kalkaska	.....	.....	.....	1	.....	1	0	.....
41	Kent	10	13	9	11	3	46	9	4.7
42	Keweenaw	.....	.....	.....	.....	.....	.....	.....	.....
43	Lake	.....	.....	.....	.....	.....	.....	.....	.....
44	Lapeer	.....	1	.....	2	1	4	1	3.8
45	Leelanau	.....	.....	.....	.....	.....	.....	.....	.....
46	Lenawee	3	1	3	1	1	9	2	4.1
47	Livingston	2	.....	.....	1	1	4	1	5.6
48	Luce	.....	.....	.....	1	.....	1	0	.....
49	Mackinac	1	.....	.....	.....	.....	1	0	.....
50	Macomb	1	1	2	1	5	10	2	5.0
51	Manistee	3	1	1	1	1	7	1	4.8
52	Marquette	5	3	2	5	.....	15	3	6.4
53	Mason	1	2	.....	.....	.....	3	1	5.0
54	Mecosta	2	2	1	.....	2	7	1	5.6
55	Menominee	.....	.....	.....	.....	1	1	0	.....
56	Midland	3	1	1	1	.....	6	1	5.4
57	Missaukee	1	.....	.....	.....	.....	1	0	.....
58	Monroe	1	.....	1	1	.....	3	1	2.6
59	Montcalm	.....	1	1	1	2	5	1	3.2
60	Montmorency	.....	.....	.....	.....	.....	.....	.....	.....
61	Muskegon	1	8	7	3	10	29	6	8.5
62	Newaygo	.....	2	3	.....	.....	5	1	5.7
63	Oakland	7	3	4	2	2	18	3	2.9
64	Oceana	1	.....	2	1	.....	4	1	6.4
65	Ogemaw	1	.....	.....	.....	.....	1	0	.....
66	Ontonagon	1	1	.....	.....	.....	2	0	.....
67	Osceola	5	.....	.....	.....	2	7	1	6.5
68	Oscoda	1	.....	.....	.....	.....	1	0	.....
69	Otsego	.....	.....	.....	1	.....	1	0	.....
70	Ottawa	1	1	2	2	.....	6	1	2.0
71	Presque Isle	.....	1	1	1	.....	3	1	7.8
72	Roscommon	.....	.....	.....	.....	.....	.....	.....	.....
73	Saginaw	3	4	5	4	5	21	4	3.8
74	Sanilac	3	2	1	.....	3	9	2	6.3
75	Schoolcraft	1	.....	.....	1	.....	2	0	.....
76	Shiawassee	1	5	.....	1	2	9	2	5.4
77	St. Clair	3	.....	3	4	5	15	3	4.9
78	St. Joseph	1	.....	3	.....	.....	4	1	3.6
79	Tuscola	2	2	2	.....	.....	6	1	3.0
80	Van Buren	.....	.....	1	2	.....	3	1	3.2
81	Washtenaw	3	2	.....	4	4	13	2	3.9
82	Wayne	110	85	87	64	76	422	84	6.8
83	Wexford	.....	.....	4	1	.....	5	1	5.3

ALL OTHER PUERPERAL

	STATE AND COUNTIES	1921	1922	1923	1924	1925	Total Five Years	Average Five Years	Average Rate Per 100.000 Population
	STATE	340	343	394	471	455	2,003	401	4.1
1	Alcona	1	.....	.....	2	1	4	1	16.3
2	Alger	.....	.....	1	2	.....	3	0	.....
3	Allegan	2	3	5	2	3	15	3	7.9
4	Alpena	4	1	2	1	3	11	2	11.2
5	Antrim	.....	.....	1	.....	.....	1	0	.....
6	Arenac	.....	1	.....	3	1	5	1	10.5
7	Baraga	.....	1	1	2	1	5	1	12.0
8	Barry	2	4	.....	.....	3	9	2	9.2
9	Bay	5	5	5	5	5	25	5	7.1
10	Benzie	.....	.....	.....	2	.....	2	0	.....
11	Berrien	3	4	9	6	4	26	5	7.5
12	Branch	2	.....	.....	2	5	9	2	8.3
13	Calhoun	8	6	5	8	10	37	7	8.9
14	Cass	3	.....	4	2	2	11	2	9.7
15	Charlevoix	1	1	3	.....	.....	5	1	6.3
16	Cheboygan	1	2	3	1	1	8	1	7.1
17	Chippewa	2	.....	2	5	1	10	2	7.9
18	Clare	.....	.....	.....	.....	.....	.....	.....	.....
19	Clinton	1	4	2	3	3	13	2	8.5
20	Crawford	1	.....	1	.....	.....	2	0	.....
21	Delta	4	3	4	5	1	17	3	9.5
22	Dickinson	4	1	4	5	4	18	3	15.3
23	Eaton	4	1	1	2	3	11	2	6.7
24	Emmet	11	6	2	4	7	30	6	38.1
25	Genesee	13	8	18	15	21	75	15	9.7
26	Gladwin	6	2	.....	1	1	10	2	21.9
27	Gogebic	3	.....	6	3	2	14	3	8.1
28	Grand Traverse	4	4	5	2	3	18	3	15.4
29	Gratiot	3	4	3	4	4	18	3	8.3
30	Hillsdale	1	1	2	2	1	7	1	3.5
31	Houghton	5	9	4	9	6	33	6	8.3
32	Huron	2	4	5	2	4	17	3	9.0
33	Ingham	7	4	10	12	11	44	9	9.9
34	Ionia	2	4	3	5	2	16	3	8.8
35	Iosco	.....	1	1	.....	2	4	1	11.9
36	Iron	3	1	2	2	2	10	2	8.3
37	Isabella	3	3	4	3	5	18	4	17.5
38	Jackson	7	5	6	6	5	29	6	7.5
39	Kalamazoo	6	12	13	11	12	54	11	14.5
40	Kalkaska	.....	3	1	1	1	6	1	17.6
41	Kent	16	17	16	17	15	81	16	8.4
42	Keweenaw	.....	2	.....	1	.....	3	0	.....
43	Lake	.....	.....	.....	.....	1	1	0	.....
44	Lapeer	5	3	5	3	1	17	3	11.4
45	Leelanau	1	.....	.....	1	1	3	0	.....
46	Lenawee	3	3	4	5	3	18	3	6.2
47	Livingston	2	1	1	1	1	6	1	5.6
48	Luce	.....	1	1	.....	.....	2	0	.....
49	Mackinac	.....	.....	2	1	.....	3	0	.....
50	Macomb	3	5	4	3	6	21	4	10.1
51	Manistee	.....	1	2	1	2	6	1	4.8
52	Marquette	6	2	2	6	6	22	4	8.5
53	Mason	3	1	.....	.....	2	6	1	5.0
54	Mecosta	3	3	1	2	5	14	3	16.8
55	Menominee	1	2	1	2	1	7	1	4.2
56	Midland	.....	.....	1	1	3	5	1	5.4
57	Missaukee	.....	3	1	1	.....	5	1	11.0
58	Monroe	3	3	4	1	3	14	3	7.7
59	Montcalm	2	2	7	5	4	20	4	12.9
60	Montmorency	.....	.....	2	.....	.....	2	0	.....
61	Muskegon	3	3	2	5	6	19	4	5.7
62	Newaygo	.....	5	1	3	1	10	2	11.4
63	Oakland	10	7	9	10	13	49	10	9.7
64	Oceana	2	4	1	2	1	10	2	12.8
65	Ogemaw	.....	1	.....	.....	.....	1	0	.....
66	Ontonagon	2	2	1	.....	1	6	1	7.2
67	Osceola	1	4	4	1	5	15	3	19.5
68	Oscoda	.....	.....	.....	.....	.....	.....	.....	.....
69	Otsego	2	2	.....	.....	1	5	1	16.2
70	Ottawa	2	6	3	9	2	22	4	8.2
71	Presque Isle	3	3	4	.....	2	12	2	15.5
72	Roscommon	.....	1	.....	.....	1	2	0	.....
73	Saginaw	8	12	8	15	11	54	11	10.5
74	Sanilac	7	6	3	1	2	19	4	12.6
75	Schoolcraft	.....	.....	.....	2	2	4	1	9.3
76	Shiawassee	3	2	3	5	3	16	3	8.1
77	St. Clair	7	7	5	10	8	37	7	11.5
78	St. Joseph	1	2	4	4	2	13	2	7.2
79	Tuscola	1	1	2	2	1	7	1	3.0
80	Van Buren	.....	1	.....	2	3	6	1	3.2
81	Washtenaw	8	6	11	9	5	39	8	15.4
82	Wayne	104	111	140	199	187	741	148	12.1
83	Wexford	4	.....	1	1	4	10	2	10.7

DEATHS FROM ALL CAUSES

	STATE AND COUNTIES	1921	1922	1923	1924	1925	Total Five Years	Average Five Years	Average Rate Per 100,000 Population
	STATE	44,186	43,817	49,333	47,304	49,417	234,057	46,811	12.2
1	Alcona	55	56	65	49	56	281	56	9.2
2	Alger	91	82	95	97	99	464	92	8.4
3	Allegan	499	455	534	500	429	2,417	483	12.7
4	Alpena	236	249	250	238	221	1,194	239	13.3
5	Antrim	147	119	146	128	126	666	133	11.5
6	Arenac	111	77	88	94	89	459	92	9.6
7	Baraga	82	69	74	81	66	372	74	8.9
8	Barry	257	298	275	244	296	1,370	274	12.6
9	Bay	850	790	802	778	816	4,036	807	11.4
10	Benzie	101	95	96	69	78	439	88	12.7
11	Berrien	656	714	777	844	865	3,856	771	11.6
12	Branch	387	341	378	396	361	1,863	373	15.5
13	Calhoun	1,020	967	1,064	1,093	1,132	5,276	1,055	13.5
14	Cass	299	269	307	270	291	1,436	287	13.9
15	Charlevoix	186	171	193	145	186	881	176	11.1
16	Cheboygan	196	154	196	137	170	853	170	12.1
17	Chippewa	287	259	285	242	283	1,356	271	10.7
18	Clare	113	104	102	85	69	473	94	11.3
19	Clinton	299	301	330	279	277	1,486	297	12.6
20	Crawford	44	57	48	47	65	261	52	12.1
21	Delta	385	345	257	324	368	1,779	356	11.3
22	Dickinson	197	203	183	334	339	1,256	251	12.8
23	Eaton	435	395	399	430	413	2,072	414	13.9
24	Emmet	260	277	244	239	239	1,259	252	16.0
25	Genesee	1,259	1,197	1,732	1,368	1,378	6,934	1,386	8.9
26	Gladwin	84	79	61	59	56	339	67	7.3
27	Gogebic	300	276	320	380	335	1,611	320	8.6
28	Grand Traverse	448	427	419	398	411	2,103	421	21.6
29	Gratiot	406	370	401	394	369	1,940	388	10.7
30	Hillsdale	371	401	363	333	424	1,892	378	13.3
31	Houghton	658	678	669	626	701	3,332	666	9.2
32	Huron	448	379	376	311	359	1,873	374	11.2
33	Ingham	948	911	1,125	1,074	1,104	5,162	1,032	11.3
34	Ionia	483	428	498	460	460	2,329	466	13.7
35	Iosco	108	81	88	85	93	455	91	10.8
36	Iron	171	157	183	151	177	839	168	7.0
37	Isabella	279	261	287	253	290	1,370	274	12.0
38	Jackson	989	923	977	971	1,030	4,890	978	12.2
39	Kalamazoo	1,159	1,182	1,213	1,143	1,281	5,978	1,195	15.8
40	Kalkaska	75	52	49	72	60	308	61	10.7
41	Kent	2,342	2,341	2,587	2,409	2,665	12,344	2,469	12.9
42	Keweenaw	62	61	60	50	55	288	57	8.9
43	Lake	48	49	38	43	42	220	44	9.7
44	Lapeer	386	368	451	362	379	1,946	389	14.8
45	Leelanau	101	96	100	82	95	474	95	10.5
46	Lenawee	669	594	705	677	679	3,324	665	13.7
47	Livingston	273	244	249	266	257	1,289	258	14.5
48	Luce	128	128	126	126	131	639	104	15.1
49	Mackinac	101	87	102	103	116	509	102	12.7
50	Macomb	519	541	614	646	663	2,983	596	15.0
51	Manistee	243	249	248	245	256	1,241	248	11.9
52	Marquette	531	474	542	529	541	2,617	523	11.1
53	Mason	246	251	229	244	219	1,189	238	12.0
54	Mecosta	266	268	223	203	225	1,185	237	13.3
55	Menominee	234	240	278	277	298	1,327	265	11.1
56	Midland	184	166	158	175	155	838	167	9.0
57	Missaukee	83	99	69	81	77	409	82	9.0
58	Monroe	425	424	481	467	415	2,212	442	11.3
59	Montcalm	365	393	440	358	380	1,936	387	12.5
60	Montmorency	31	42	29	35	35	172	34	7.8
61	Muskegon	743	702	916	804	810	3,975	795	11.3
62	Newaygo	225	212	221	208	198	1,064	213	12.1
63	Oakland	1,128	1,122	1,402	1,447	1,561	6,660	1,332	13.0
64	Oceana	187	181	194	193	192	947	189	12.1
65	Ogemaw	104	89	78	87	78	436	87	11.1
66	Ontonagon	92	113	98	117	115	535	107	7.7
67	Osceola	180	169	191	177	167	884	177	11.5
68	Oscoda	13	14	13	15	17	72	14	7.8
69	Otsego	78	52	70	62	46	308	61	9.9
70	Ottawa	514	484	562	489	472	2,521	504	10.3
71	Presque Isle	136	122	117	97	121	593	118	9.2
72	Roscommon	25	31	45	26	27	154	31	15.3
73	Saginaw	1,180	1,158	1,374	1,253	1,242	6,207	1,041	9.9
74	Sanilac	360	375	382	325	336	1,778	355	11.2
75	Schoolcraft	99	101	104	104	95	503	100	9.3
76	Shiawassee	556	502	546	453	477	2,534	507	13.6
77	St. Clair	824	802	850	841	798	4,115	823	13.5
78	St. Joseph	338	372	371	330	351	1,762	352	12.6
79	Tuscola	508	445	499	421	414	2,287	457	13.5
80	Van Buren	410	377	434	420	391	2,032	406	13.1
81	Washtenaw	932	969	1,023	1,084	1,170	5,178	1,035	20.0
82	Wayne	12,654	13,455	15,821	15,513	16,533	73,976	14,795	12.1
83	Wexford	284	206	244	239	261	1,234	247	13.2

THE SURGICAL CONSCIENCE

C. D. Lockwood, in the *Archives of Surgery*, selected the above title for this presidential address before the Pacific Coast Surgical Association. It is a subject that is timely and pertinent to present conditions in surgery. It is a splendid article, voicing sound principles and just criticism of present tendencies. We are abstracting certain portions of the address.

The surgical conscience may be discussed under the following headings:

As related to the necessary preparation for the practice of surgery. Are we not as a profession encouraging half equipped and poorly trained men to undertake surgery? Our medical schools and our state laws, by virtue of their conferring and licensing powers, put the stamp of approval on the young practitioner and he is vested with both moral and legal authority to perform the most difficult and dangerous operations immediately on graduation.

Most of the older members of this association obtained their surgical experience and skill in the hard school of general practice. Few of us, I think, would assert that we have not sacrificed lives that might have been saved had we possessed better judgment and greater skill. This is true notwithstanding the fact that we did the best we could. Surgery has made such rapid strides in the last thirty years that it has been impossible to train men adequately and in sufficient numbers to meet the demands of the public. This necessitated the employment of poorly trained and self made surgeons. The broad background that the surgeons of the passing generation acquired in general practice and their brilliant achievements were in large measure due to their wide knowledge of general medicine.

It is no longer justifiable to rely on private practice for training in surgery; neither should we be satisfied with purely didactic and technical training, such as an apprenticeship in surgery affords. But a wise combination of both will insure the requisite technical skill and surgical judgment that should characterize the surgeon of the future.

There is now a surplus of surgeons in almost every community. Competition is now so keen that ambitious young surgeons with little practice and little experience are finding indications for surgery in a large percentage of the patients who consult them. It is the exception to find a woman over 40 who has not had one or more operations and I am sure that all of you will testify that much of this surgery is ill advised and poorly executed.

To all of which there is agreement.

There must evolve a remedy to quicken this surgical conscience. Our present opinion is that it can be controlled by hospital regulations provided we control hospitals by state licensing in order to eliminate the private house hospital that accepts any kind of a patient and any kind of an attendant.

The second heading I would suggest for this discussion of the surgical conscience is, the care that should be employed in the selection of cases for operation. In no field of human activity is there greater need for a keen conscience and a trained judgment than in the practice of surgery. The most rigid checks are necessary if the patient is to receive just treatment. This is particularly true in the field of elective surgery. In traumatic and emergency surgery the indications for treatment are fairly definite and there is as much danger of erring on the side of conservatism as on that of radicalism, but in the great field of elective or doubtful cases, this is not so. Too often hasty diagnoses are made on insufficient evidence and too little time allowed for thorough preparation for operation. The surgeon is too often influenced by monetary considerations, by the fear of competition and by the opinions of the patient. Sometimes the surgeon's convenience, his vacation plans, his golf engagement or some other social affair will enter into the decision as to when an operation shall be done and may well be the determining factor in its outcome. Often a desire to save the patient expense and incidentally to conserve his resources so that he can pay a better fee will deter the careless and unscrupulous surgeon from resorting to all necessary diagnostic precautions.

The above analysis receives an emphatic "Amen." Here again hospital staffs, chiefs of services and review of case records furnish the braking power. Needless, ill-advised and "for a fee" operations will be restricted and prevented just as soon as hospital officials acquire the courage to operate a "stop" semaphore.

Finally, I wish to discuss the surgical conscience in relation to the fee. I realize that here I am treading on dangerous ground and that I may lay myself open to criticism, but I believe it is incumbent on those of us who are looked on as leaders in the profession to sound a note of warning on this phase of surgical conduct. The division of fees has come to be recognized by all reputable surgeons as a dishonorable and degrading practice. The American College of Surgeons has done much toward bringing this practice into disrepute. Nevertheless, it is still continued by a large group of surgeons and is defended by some men as justifiable. I believe that any unprejudiced mind will condemn it as demoralizing to both the physician who receives a commission for referring the case and to the surgeon who divides his fee. It converts a professional relationship into a commercial transaction and stultifies the conscience of both parties to it. Moreover, it makes a pawn of the patient and tempts both physician and surgeon to recommend unnecessary surgery. While it is still a great evil, it has been driven into the byways and alleys where the scavengers and highwaymen of medicine lurk.

I believe a greater evil than fee splitting is threatening our profession and this is the practice of charging exorbitant fees. There is a strong tendency toward commercialism among surgeons today and the humanitarian and ethical ideals which have been the glory of our profession are in danger of being submerged. Fees out of all proportion to the service rendered and to the ability of the patient to pay are being charged by surgeons of little training and ability. Indeed, much of the surgery for which these exorbitant fees are charged is poorly advised or unnecessary. Many surgeons of standing and ability, indifferent to every sentiment of fairness and generosity, are exacting fees that savor of rank commercialism.

Young men entering surgery are no longer willing to do the drudgery and serve the hard apprenticeship that most of the surgeons of this generation experienced. They expect and demand the same fee as men who have earned their reputations by long and arduous efforts. Few of the younger men are willing to enter general practice and for moderate compensation act as the family adviser in matters of health. The vast majority of our well equipped medical graduates are ambitious to enter the surgical specialties soon after graduation and few of them acquire the broad background which five or ten years of general practice will give. The result of this attitude of mind is that people of moderate means can no longer find competent graduates of regular medicine who are willing to advise them and treat their minor ailments for moderate fees. It is necessary now to consult a series of specialists and incur large bills in order to obtain satisfactory medical service. The growth of cults, free dispensaries and lay movements along medical lines can be largely ascribed, I believe, to this failure of the regular medical profession to meet the needs of the average man. I am not decrying the charging of substantial fees when the patient is able to pay and when real service has been rendered, but the present tendency to emphasize the money making side of our profession should be strongly condemned.

This touches a vulnerable spot, and one that is occasioning much commnet on the part of the public. Admitedly there are two sides to the issue. Likewise in the size of a fee well taken arguments eminate from both sides. We concede that money never can fully compensate the surgeon for all that he contributes to a surgical case. Our traditions never contemplated that his compensation in dollars would balance his services. There must ever be a credit charge to ideals, humanitarianism and mercy. Fate forbid that the day may never come when these ideals be displaced by sordid, dollar idolatry. The surgical conscience alone will solve this problem of fees. Grant that it will ever characterize the surgeons of today and of tomorrow.

CAUSES AND TREATMENT OF DELAYED UNION

Delayed union in fractures of the long bones is dependent on

1. Inaccurate reduction,
2. Inefficient fixation,
3. Poor blood supply,
4. Muscle interposition,
5. Disease.

Inaccurate reduction and inefficient fixation account for the great majority of cases of delayed union. Inaccurate reduction can be avoided only by the application of the modern methods of traction and counter-traction controlled by the frequent use of the X-ray. Efficient fixation can be obtained by simple splinting only in the comparatively rare transverse fracture which has been interlocked end to end. When such interlocking is impossible, then efficient fixation is possible only through some form of traction apparatus. Nothing else will overcome the tendency of the muscles to produce over-riding of the fragments. In fractures of one bone in the forearm or lower leg, this traction apparatus may be substituted successfully by a plaster of paris splint which uses the sound bone as a fulcrum and provides extension and counter extension by maintaining a position of abduction or adduction as the case may require. Such a splint keeps the muscles stretched and thus prevents over-riding.

Accurate reduction is immensely easier if undertaken within the first hour or two after the injury. Efficient fixation is immensely easier if it is applied within the first hour or two before muscle contraction has set in. No matter how severe the fracture or what its nature, reduction should be attempted immediately. We should never wait for the "swelling to subside."

Poor blood supply is occasionally the cause of delayed union in certain fractures where reduction and fixation are entirely satisfactory. Of these the commonest example is fracture of the lower third of the tibia. Less common are fractures of the lower third of the humerus and of the neck of the femur.

Disease is rarely the cause of delayed union; syphilis is the least common cause under this classification.

These statements lead us to the discussion of the fourth cause of delayed union, muscle interposition. It is far commoner than ordinarily supposed. It is most frequent at the, or about the middle of the femur, the middle half of the humerus, the middle half of the tibia and the upper two-thirds of the radius and ulna. It is most apt to occur when the lateral displacement of the fragments has been great at the time of injury;—when any fragment has a long sharp point;—or when delay in reduction has been considerable. It may consist of a large mass of muscle of a mere strand of fascia. It is the most important among the very few conditions which justify open operation of a simple fracture. When it is present open operation should be undertaken at the earliest possible moment that time may be saved for the patient.

The recognition of the presence of muscle interposition between the fragments of the fracture is not easy, although theoretically it should be. It depends on

the very careful application of certain tests. The first of these is the manipulation of the fracture under an anesthetic and with the guidance of the fluoroscope. If the fracture can be brought into perfect position and the rough ends of the bone can be felt to grate strongly on each other, it is probable that there is no muscle interposition. This test is not positive because sometimes one fragment may have penetrated without given sufficient contact to allow union. If it were not for its usefulness in betraying muscle interposition, it would be unnecessary in many fractures of the femur and humerus to employ manipulation under an anesthetic at all. It would be wiser to apply a traction apparatus at once and depend on the extension and counter extension to reduce the fragments gradually.

The second most valuable test of muscle interposition is that supplied by the action of the fracture under the influence of an efficient traction apparatus. It is as follows: If at the end of three days of real efficient traction the fragments as shown by the X-ray are not end to end in both planes, then muscle interposition should be strongly suspected. If the X-ray shows satisfactory end to end reduction at the end of two weeks' time, yet the displacement immediately recurs when the extension is relaxed—then muscle interposition is almost surely present. Careful observance of these tests will ordinarily reveal the presence of muscle between the fragments, and yet in spite of them one may sometimes go wrong as shown by the following cases.

In December of 1925 a man of 25 received an oblique fracture of the left femur at the middle third, in an automobile accident. He was taken to the hospital where an anesthetic was given and a reduction done by the family physician. An inefficient extension apparatus was then applied. At the end of two weeks I saw him, the apparatus was not holding and there was two inches overlapping of the fragments. The physician said that there had been frank crepitus at the original manipulation. An efficient apparatus was applied and the fragments pulled into excellent position. On manipulation without an anesthetic at this time slight crepitus could be felt. Because this crepitus was so slight the patient was warned that there might be need of an open operation later. Six weeks later the position as shown by the X-ray remained excellent and there was slight callus visible. Maniplation seemed to show firm union. The traction was therefore removed. One week later the deformity had recurred and there was displacement and one and one-half inches of shortening. Operation was immediately undertaken. It was found that a sharp spike of the lower fragment was thrust through a large mass of muscle and had been in contact with the upper fragment. The muscle however, formed a complete collar of soft tissue which kept the rest of the bone ends from each other. This spike accounted for the crepitus and for the small band of callus visible in the X-ray, and which had given the impression of union. At operation the muscle was removed, the fragments put in perfect position and secured by a beef bone plate and screws. Union is now firm and the patient is normal except for a very stiff knee. If operation had been done at once in this case the patient would have been saved eight weeks of time and his knee would not have been stiff.

In contrast to this case, a young woman had a transverse fracture with marked displacement at the junction of the lower and middle thirds of the right femur. At the original manipulation slight but unconvincing creptus was felt. The ends of the bone could not be engaged firmly. Calipers were applied to the condyles of the femur and she was placed in a Thomas splint with hinged knee piece and thirty pounds of weight applied. At the end of forty-eight hours, the shortening had been completely overcome but X-rays showed a continued moderate backward and inward displacement of the lower fragment. At the end of ten days this was still present. Open operation was done and a large mass of muscle which was caught on one of the irregularities at the outer anterior position of the lower fragment was freed. It was then easily possible to engage the ends of the bone in firm and accurate apposition. This engagement was so firm that traction was unnecessary and a simple plaster spica prevented deformity till healing occurred.

In a third case a boy of seven fell and broke his right femur at about the middle. There were three fragments. Of these the middle one was about two and a half inches long. Its lower end was broken transversely and its upper end in a long oblique. The whole middle fragment lay transversely to the long axis of the leg. The radiologist felt that reduction should be possible under an anesthetic with the aid of the fluroscope. The family objected strenuously to open operation. Therefore two strenuous attempts were made at closed reduction. Crepitus could be felt at the lower end of the middle fragment but not at the upper. It was impossible to swing this fragment into more reasonable alignment. The family finally agreed to open operation. The middle fragment was found to be so firmly inbedded by its sharp upper end in muscles, that it was necessary to remove it entirely to free it. After removal the muscles were rearranged and the fragment replaced in perfect position. A Parham band held the oblique upper fracture so firmly that a simple interlocking of the lower fracture sufficed. Healing in plaster of Paris was prompt and the Parham band was removed at the end of four weeks.

One final example. A man broke his left humerus at the surgical neck and also about four inches above the lower condyles. Under ether the upper fracture was reduced easily but the lower one, although it could be got in fair position, promptly slipped out as often as it was put in position. Open operation was done and muscle found between the fragments. This was removed and a beef bone plate and screws applied with prompt and perfect recovery.

In conclusion, then, if fractures of the long bones are not promptly and perfectly reduced and held by manipulation and properly applied traction, open operation

should be done at once. Frequently muscle interposition will be found.

It is usually unnecessary to use any foreign body to hold the fragments after the removal of the offending muscle at open operation. If such foreign body must be used, only in emergency should it be metallic. Beef bone is in my experience the best internal splint in fresh fractures where any foreign body must be used. Occasionally to save time, as in case number III just cited, it is necessary to use some simple metallic device such as a Parham band. This should be removed as soon as possible in spite of the fact that metal has been known to stay in place indefinitely without harm.

F. C. Kidner.

ENDOWMENT FOUNDATION

It is quite generally recognized by our medical schools, medical organizations and members of the profession that an outstanding obligation exists to provide postgraduate instruction opportunities for all the members of the profession. Collectively the entire profession is vitaly concerned in the maintaining of a high type of medical practice on the part of all doctors of medicine.

Our science executes rapid strides of progress. Principles and theories of yester-year are displaced by the proven new facts and discoveries of today. Methods of diagnosis become more accurate and new methods of treatment evolve from the new facts uncovered. These conditions make it imperative that the recent graduate as well as the man advanced in the years of practice shall have at their ready command opportunity of remaining abreast of the times and acquiring for themselves these accepted methods of treatment. Further, that they be encouraged to discard the old, less efficient methods for the more modern proceedures. That unitedly we grasp each others hand and reflect a profession that is efficient for service to all mankind. That, we feel is the outstanding obligation of the profession that is efficient for service to all mankind. That we feel is the outstanding obligation of the profession. We can no longer condone scattered groups of outstanding professional men trailed by the mediocre or wholly incompetant. Well nigh 100 per cent capability is desired for all of our Michigan doctors.

Our State Medical Society has for years been mindful of such a responsibility. In fact it has been the leader. (and we say it with pride) in the field of State Societies in giving thought to the problem of postgraduate medical education. Through officers and committees we have concerned ourselves with the scientific programs of County Societies. Some 12 years ago we organized clinical teams that went from county to county meetings. Councilor District meetings were sponsored and capable speakers provided for their programs. Regional clinics were conducted. Three years ago District Post-Graduate Conferences were instituted and during the past year two such one or two-day meetings were conducted in each Councilor District. In addition a three-day clinic was conducted at the University Hospital while endorsement and support has been accorded to several clinics arranged by hospitals and local organizations. We are justly proud of this activity and this policy that seeks to maintain our members in the van of medical progress.

However, we are not content with what has been accomplished, much still remains to be done. Increased activity is requisite. It is to that end that our society through its officers and Council is directing its thought and effort. Illustrative of our enlarging scope of activity is the foundation. The purpose of that foundation is set forth in the following articles of its creation:

ARTICLES

THIS MEMORANDUM, Made this 3rd day of January, 1927, A. D., 1926, by and between The Michigan State Medical Society, a Corporation duly organized and existing under and by virtue of the laws of the State of Michigan, with principal office and place of business in the City of Battle Creek, County of Calhoun, in said State, hereinafter called "Settlor", party of the first part, and The Grand Rapids Trust Company, a Michigan Corporation, with principal office and place of business in the City of Grand Rapids, County of Kent, and said State, hereinafter called the "Trustee", party of the second part, witnesseth:

Whereas, The "Settlor" is desirous of establishing a fund, the income from which shall be used for the purpose hereinafter in this instrument specified,

Now, Therefore, it is agreed that funds may be hereafter deposited with the Trustee by the "Settlor", and by other persons, such funds shall be known as the Michigan State Medical Society Foundation, shall be kept by the Trustee with full power to invest, reinvest, convert, and reconvert the same, and any part thereof; to receive, collect and liquidate the income therefrom and the principal thereof to sue for or defend, compromise or adjust any chose in action, and any right or title acquired under or by reason of this trust, to deposit securities under consolidation or merger plans, and to participate in co-operative action through creditor's or bondholder's committees; to pay all taxes, assessments, insurance premiums, attorney fees, and all other expenses incident to the execution of this trust, including the compensation of the Trustee, which compen-

sation shall not exceed one-half (½) of one (1) per cent of the fair market value of the fund annually, and to have all other powers necessary or convenient for the exercise of the powers hereinbefore specifically conferred.

(a) The purposes of this trust are to pay from the net income of the fund or funds held in trust on order of Executive Committee of the Council of The Michigan State Medical Society, for the purpose of providing post-graduate instruction without fee for those designated by said executive committee, to conduct clinics and courses of instruction without fee in hospitals and medical schools in the State of Michigan, and to provide funds either by gift or loan to sustain such persons as are designated by said Executive Committee, during the period of attendance on said post-graduate instruction or said clinics.

(b) The principal shall at all times be kept invested and income only shall be used. Should the income for any year be more than is required to meet the recommendations of the Committee the surplus shall be held as surplus income for subsequent expenditures. If for any year more funds are required by the recommendations of the Committee than are available, recommendations are to be met and orders paid from subsequent income in the order of their receipt by the Trustee. The Trustee shall not be bound to determine the worthiness of the persons or property of the objects designated to receive the income of the trust. These things shall rest entirely with said executive committee, and the Trustee shall be bound only to the exercise of good faith and reasonable prudence in the investment and care of the fund.

(c) This trust shall continue in perpetuity and donations thereto may be given special names and designations by the donors, and by the "Settlor" appropriate to the purpose of the gift and in recognition of the giver.

(d) Gifts may be either in money, or property, may be by will or deed, or by subscription agreement, payable in installments and within the purposes hereinbefore in this agreement expressed may be designed for particular objects.

(e) Said "Settlor", and its said executive committee may make such rules governing the disbursing of the net income of the fund as they see fit, prescribe such courses of instruction, select such persons as they may choose, and grant such certificate or diploma upon completion of such courses of instruction as they see fit, and no liability or duty shall attach to the Trustee with reference to those or with reference to the payment of the net income of the fund except that payment be made only upon recommendation by the Executive Committee of the Council of "Settlor."

(f) The recommendations by the Executive Committee of the Council to the Trustee for payment of income shall be in the form of written orders and signed by a majority at least of said Executive Committee. The "Settlor" in writing under its seal shall inform the Trustee annually, and more frequently if there be changes, of the persons constituting the Executive Committee of its Council and of their authorized signatures and the Trustee may rely on such information and make payments upon orders as signed until official information of changes in the personnel of the Committee are delivered to it.

In Witness Whereof, Said Party of the first part has hereunto set his hand and seal the day and year first above written, and on the same date said Grand Rapids Trust Company, the second party hereto, has caused its corporate seal to be affixed and these presents to be signed by its Vice-President and Secretary in its behalf.

Executed in Truplicate. .....(L.S.)

Signed, Sealed and Delivered in the Presence of:

Grand Rapids Trust Company,

..... By.....
Vice-President

..... By.....
Secretary.

Funds are necessary for our educational work. The increase of society dues is inadvisable. Consequently needed monies will be forth coming from this foundation. As such monies become available our educational program will be broadened in scope and extent. The Council is now giving careful consideration to the creation of an all-year Michigan Post-Graduate Medical school. It is purposed also to send competent instructors to County Societies for one or two-day programs. We are alert to the need of the day and are seeking to formulate permanent plans that will supply those needs and serve the best interests of our members.

Two bequests have already been made to the foundation. We are seeking others. We want and require an endowment of not less than $250,000. We believe that it is considerate to suggest, yes urge, that those who are able, should now tender additional bequests. Some may also desire to incorporate such a provision in their will. It must be apparent that monies so bequeathed will provide funds in perpetuity for our profession. But more in that regard will be imparted in a future issue. This statement acquaints you with a plan that has resulted from much thought and labor. It also imparts the broadening scope of your society's endeavor giving added reason for membership affiliation.

DISCONTINUING THE OFFICE OF EXECUTIVE-SECRETARY

In connection with the above heading our members are invited to read the minutes of the last Session of the Executive Committee of the Council. Therein will be found the reason for this change in policy. The hasty conclusion must not be formulated that this is a retrogressive step. On the contrary, it is preliminary to the institution of a new plan of administrative policy that will conserve and enhance organizational activity.

In discontinuing the services of Mr Smith, the society's appreciation and good will follows him into his new fields of labor.

MONTHLY COMMENTS

Medical—Economic—Social

Well, Uncle Sam, through the Supreme Court, has said he has the right to regulate the amount of liquor you can prescribe in a given time. The court procedure was on the principle of the right to limit dosage for you, as a doctor, and not based on the value of whisky as a medicinal agent. To us it has been a hulla baloo over nothing. Still, in certain states, especially on the eastern and western coasts, numerous doctors, prominent and otherwise, have been intensely interested and concerned. Well, now that that's settled, let us forget it.

President Jackson has announced the following appointments:

Committee on Hospital Survey: Richard R. Smith, Chairman; W. H. Marshall, J. Walter Vaughan,

Committee on Medical History of Michigan: C. B. Burr, Chairman; J. H. Dempster, W. H. Sawyer, W. J. Kay, J. D. Brook.

We confidently look forward to some excellent work on the part of these two special committees.

Please note the editorial upon physical examinations and then turn to our Editorial pages where you may secure at a reasonable price a record system for these examinations. You cannot afford to forego possessing this compact record system, neither can you be unsystematic in making these examinations. Start the new year right.

Every doctor for his own protection as well as for the patient, should, as a routine, use the blood Wassermann test. Surely, every surgeon should observe the same precaution. In fact, we believe that hospitals should demand a Wassermann before permitting operation. We recognize that there are definite surgical lesions in spite of a positive report, still this knowledge will materially aid one in the post operative care. On the other hand, operative interference is frequently instituted on assumption based upon symptoms, which symptoms have become pronounced by reason of syphilitic infection. The surgical error in osseous surgery has been 21 per cent due to neglect of the Wassermann in 200 cases. Neurosyphilis outranks all other causes as a symptom producer. There would be fewer operations for gastric ulcer, gallstones, gall-bladders, appendicitis, salpingitis, adhesions, neuralgias and renal calculi were these patients subjected to Wassermanns or spinal puncture. The study of pupillary reflexes and knee reflexes and history of lightning pains and difficult urination might obviate operations. In 200 "stomach troubles," 60 per cent had positive spinal fluids, with 45 per cent positive Wassermanns. Seventy per cent of these patients were relieved of their "stomach trouble," made complete recoveries under proper treatment. Neurosyphilis simulates surgical conditions and the "gastric neuroses" and "overwork" diagnosis of the medical man would be exposed if before making a positive diagnosis the examination was made to include a Wassermann. Hence we repeat—in every case insist upon a Wassermann.

How do you like it? That is what we want to hear from our members as to the new style of The Journal . No, we are not holden to this tint on our cover page for every issue. We purpose varying the cover color during the year. We will appreciate receiving your impressions and opinions. Incidentally we will also welcome such constructive suggestions as may occur to you.

"Rastus, your dog seems to be in pain."

"Nossuh, he ain't in pain—he's just lazy."

"But surely he must be suffering or he wouldn't howl like that."

"Jes' plumb laziness, jes' laziness—he's sittin' on a thistle."

The above not only has food for a smile but also affords a thought for reflection. Often, yes sometimes quite often, we run into or hear from a doctor in the form of a howl. A thistle is penetrating his hide, things are not going the way he thinks they should, his local Society is all wet, the clinics are not to his liking, etc., and he howls. To our mind, he is a good deal like Rastus' dog—he's plumb lazy. He declines to contribute time or personal effort to remedy or aid to remedy affairs—he's of the type that wants the other fellow to do it all with no effort on his part. He's sitting on a thistle and jes' plumb lazy to start or join in the work of his County Society and so he just howls at the Secretary, President, Program Committee or the Speaker. A shot of pepper might correct his attitude.

Announcement is made in our columns of the Eleventh Annual Clinical Session of The American College of Physicians to be held in Cleveland, Ohio, February 21-25, 1927. A program of unusual interest is being planned in which the Cleveland hospitals and the Western Reserve University will co-operate. A full opportunity will be given every attendant at the Session to see the entire hospital equipment of the City of Cleveland, to meet its prominent clinicians and to form an idea of the amount and variety of clinical material of the city, and to see what is being done in the educational use of this material.

During the mornings, there will be clinics and demonstrations at the various hospitals and in the laboratories of the Western Reserve University; during the afternoons, papers on various medical topics will be delivered by local members of the profession and by members of The College from other parts of the United States and Canada; during the evenings, there will be formal addresses by distinguished guests, American or foreign, and by the President or other representatives of The College.

The American College of Physicians is a national organization in which internists may find

a common meeting ground for discussion of the special problems that concern them and through which the interests of internal medicine may have proper representation. It is not a limited national society of specialists, but on the other hand it is not co-ordinal with large national or sectional organizations of physicians requiring present reasonable qualifications as internists, along with other certain specified requirements, before being accepted as members.

The College has extended an invitation to all qualified physicians and laboratory workers to attend its session. Last year the Clinical Session was held at Detroit and Ann Arbor, and will be remembered as a conference of outstanding merit.

We trust you like the form, type and arrangement of this issue of The Journal. We would appreciate your comments and suggestions. The cover color shade is not permanent—we purpose using a variety of shades during the year. Tell us what you think of it, frank opinions will enable us to please you and meet your desires.

Yearly elections have or are taking place. Committee appointments are being made. We are off on to new year. Our urge is that officers and Committeemen seriously recognize that they have assumed definite responsibilities. Your office is not a perfunctory honor. Work confronts you. Do not neglect it. We want 1927 to record decided activity and accomplishment. We want to advance further than ever before in our history. It is only as you individually and collectively devote your time and effort to the task that we can achieve. Will you do your part?

Physical therapy is a term employed to define the treatment of disease by various nonmedical means. It comprises the use of the physical, chemical and other properties of heat, light, water, electricity, massage and exercise. There are certain definite indications for the use of some one or a combination of several of these physical agencies in the treatment of disease, but to depend on these agencies solely, to use them in lieu of better proved methods, or to employ them without having first thoroughly studied the patient from the standpoint of diagnosis, is harmful practice.

Some physical agencies may be used on the theory that "they will do no harm and may do some good." The psychologic element in their use impresses the patient, usually beneficially but occasionally to his detriment. The use of a certain method may become a habit with the patient, the physician or the technical assistant, so that the course of treatment is prolonged unduly. Again, manufacturers' agents—salesmen absolutely untrained in medical science—visit physicians, extolling the virtues of special physical apparatus, making unfounded claims as to curative values, and emphasizing the money-making powers of these methods of treatment.

Physical therapy came into its legitimate place in medicine during the World War. Today it is gradually taking its place with the usual medical and surgical procedures. But unless we guard against bad habits in its usage, against allowing it to replace careful diagnostic measures followed by well defined but less spectacular methods of treatment, and especially, unless we guard against its insidious tendency to make its master an easy living, physical therapy may lead into dishonest practice or quackery.

The physical measures that have been found to have certain therapeutic value both by long clinical experience and by laboratory research include:

1. Heat, Natural and Artificial.—Diathermy, hot dry packs, hot water bottle, electric pads, and the combination of heat with light and of heat with hydrotherapy.

2. Hydrotherapy.—Hot and cold packs, hot and cold douches, whirlpool baths, swimming pool.

3. Light.—Heliotherapy or sunlight therapy; artificial light, as that from a mercury arc quartz lamp, air or water cooled, a carbon or modified carbon arc lamp, or an incandescent lamp; gamma rays of radium; roentgen rays.

4. Electricity.—Galvanic, faradic, and sinusoidal currents, static electricity, ionization and combinations of these.

5. Massage.—Manual percussion; stroking, sedative type, brisk kneading type; manipulative as stretching, pulling and corrective.

6. Therapeutic Exercises.—Muscle training exercises, passive and active; mechanotherapy, occupational therapy, games.

Physical therapy is at present in a transitional stage. Its use is extending, but it is still violently condemned in toto by some physicians. Experience indicates that a selected combination of physical measures offers the best results in certain pathologic conditions; in other conditions such measures serve as a beneficial adjunct to the usual medical and surgical treatment. Above all, continued treatment by physical measures seems to result in better functional results than when patients are left to their own devices in securing restoration of function.

Many physical measures, however, have served as the chief of the armamentarium of quacks and charlatans in the past. Moreover, with renewed interest in this subject, cultists have adopted physical measures and have made extravagant unscientific claims as to their value. The avidity with which some have seized on physical therapy solely as a means of financial gain has disgusted most conscientious practitioners of medicine.

The Council on Physical Therapy feels that the following considerations must receive the most careful attention of the medical profession:

1. Physics, physiology and biochemistry must be called on to dispel the empiricism of the past and to prove the true scientific value of various physical agencies.

2. Physical therapy must be recognized as a definite part of medicine, to be practiced and controlled by graduate physicians. It should be used only as one of the triad of medicine, surgery and physical therapy. It should be prescribed only after careful physical and laboratory examinations of the patient have been made. It should never be prescribed except by a physician thoroughly trained in the use of physical agencies.

The treatment of disease, whether by drugs, surgery or physical agents, belongs solely in the realm of medicine. A physician would not refer a patient to a nonmedically trained technician for treatment by either drugs or surgery. Yet many physicians may refer patients to technicians—masseurs, gymnasts or nurses who have received training in physical therapy, or even to members

of various cults for physical therapeutic treatment.

Therefore physical therapy must be recognized as a component part of medicine, and patients requiring this type of treatment should be referred only to physicians trained in this specialty. In this way the use of these methods by charlatans will be largely eliminated.

3. Since physical therapy is a definite part of medicine, every medical school should give a thorough training in this subject. The paucity of postgraduate and undergraduate instruction in physical measures in our medical schools has placed the profession at a disadvantage. Many attempts have been made to remedy this situation. A subject as intricate as physical therapy requires more study than a salesman's assertion that the snapping of a switch or the pressure of a button will definitely assuage any pathologic change.

The making of physical therapists by courses of one or two weeks, often reeking with commercialism, must be condemned. The three to six weeks' courses, sponsored by reputable medical schools, are frankly make-shifts, but do serve to show the would-be physical therapist the breadth of the subject. At least they effect the realization that such a period suffices only for establishing the purely mechanical details of technic and the broader physiologic groundwork on which, aided by his medical knowledge and common sense, one may attempt to erect a physical therapeutic super-structure. The remedy is adequate instruction to undergraduates in the medical schools. Courses starting with biophysics should be given in the last three years. In the postgraduate schools, more intensive and prolonged courses should be offered. Medical societies should invite physicians specializing in physical measures to give sane, scientific courses in physical therapy to their members. A fair proportion of the scientific programs of medical societies should be assigned for discussion of physical measures of treatment.

4. Persistent, prolonged effort must be made to eradicate the abuses of physical therapy. A physician who has installed a diathermy machine or an ultraviolet ray generator can do good in carefully selected cases with one of these methods. He is not, however, fully equipped to render physical therapy. As a rule it is the careful combination of several physical agencies that gives the best results. Again, physicians must guard against the over enthusiastic use of new instruments and the treating of patients for prolonged periods by nurses, technicians, or office assistants.

The training of technicians should be encouraged, for trained technicians are invaluable to physicians specializing in this field. But technicians should be discouraged from establishing individual plants, even though the major part of the work is referred by physicians.

The "treatment habit" is a menace, prevalent in general practice and reaching its zenith in the physical therapeutic departments of civil hospitals. Undesirable and incurable patients may be easily referred to the physical therapy departments, where they remain long after attaining maximum improvement, to the great disadvantage of patients urgently needing such treatment to shorten their time of disability and to secure functional restoration. Under most industrial compensation laws the treatment habit tends to become firmly fixed.

The Council on Physical Therapy of the American Medical Association will endeaver to point out to the medical profession the advantages and the disadvantages of physical therapy so that its abuses may be reduced to a minimum, and its scientific possibilities may be appreciated.

OUR OPEN FORUM

Affording Opportunity for Personal Expression

Editor of The Journal:

Just a line to tell you I will be unable to attend the January meeting of the Council.

I am sailing January 12 for England, Germany, France and Austria. In a six months' visit to the various clinics there and hope to pick up some useful information.

Am sorry I won't be with you all at the next meeting but know everything will go along O.K. without me. J. J. Reycraft has buried the hatchet and everything here is a nice as can be expected. I now hope some decent County Medical Meetings can be pulled off. We are in the grip of the most early winter storm in years and see no let up in sight.

Give the Councilors my kindest regards. It has always been a pleasure to meet with and be associated with such a fine bunch of fellows.

May I wish you and yours a Merry Christmas and Happy New Year.

Yours truly,
B. H. Van Leuven, M. D.

THE JOURNAL

IS

YOUR FORUM—

WE INVITE YOU

TO UTILIZE

IT FOR THE

EXPRESSION OF

YOUR VIEWS

ON

MEDICAL SUBJECTS

NEWS AND ANNOUNCEMENTS

Thereby Forming Historical Records

Dr. Wilson Stegeman has located in St. Charles.

Dr. F. K. Lenfesty has been elected President of the Mt. Clemens Exchange Club.

Dr. B. H. Van Leuven, of Petoskey, is spending six months in Europe, sailing January 10th.

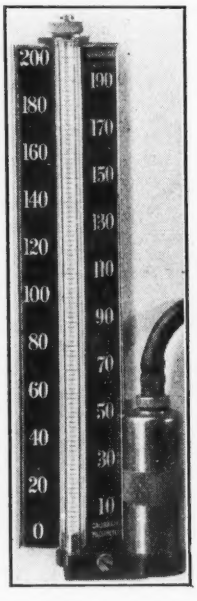
Dr. Harry Haze, of Lansing, has been elected Chairman of the newly formed Legislative Bureau. Dr. Vander Slice, of Lansing, is Secretary.

Dr. O. L. Ricker, of Cadillac, has been elected Commander of the local Post of the American Legion.

It is reported that the American College of Surgeons and Clinical Congress will be held in Detroit, in the fall of 1927. Dr. Angus McLean is Chairman of the Committee on Arrangements.

Dr. R. C. Mahaney, of Owosso, is the newly elected President of the Public Health Association. The other officers named are, Mabel Morgan, R. N., Saginaw, Vice President; Dr. W. J. V. Deacon, Lansing, Secretary and Treasurer; Dr. John Sundwall, Ann Arbor, Dr. Carl E. Buck, Detroit, R. J. Harrington, Muskegon, Dr. A. A. Hoyt, Battle Creek, and Mary M. Roche, R. N., Grand Rapids, directors.

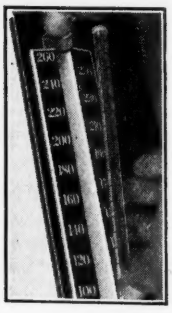
A new mercurial Sphygmomanometer, in which several important objections to this type of instrument are overcome, is described by J. L. Wilson, M. D., and H. N. Eaton, A. M., in the November 20, 1926, issue of The Journal of the A. M. A., page 1742. It has no cemented joints, and other common causes of mercury leakage and glass breakage are eliminated by the use of a simple, straight glass tube, held in a resilient mounting which enables the tube to withstand shocks which would otherwise shatter it. Severe tests have proved the sturdiness of the new construction.



The tube is so mounted that it can be removed (as for cleaning) by a simple pressure of the thumb, and replaced with equal facility. Thus, if the glass tube should break, the user can quickly insert a new one himself, without having to return the instrument to the manufacturer for repairs.

The insertion of a new tube does not impair the accuracy of the instrument. Each steel reservoir is an exact counterpart of the master steel reservoir against which each tube is individually calibrated. Therefore, the scale, which is separately engraved on each tube, is identically accurate for any instrument of this new type.

The design of the instrument (made by the W. A. Baum Co., of New York) was developed along



the lines of maximum service and convenience to the user, without the sacrifice of simplicity and ruggedness, which experience has shown to be so desirable in instruments of this character.

On Thursday, December 2, 1926, the Highland Park Physician's Club held its Annual Clinic at the Highland Park General Hospital. The day was divided into three sessions, morning, afternoon and evening.

At the morning session an address on Physiotherapy was delivered by Dr. Disraeli Kobak, President of the American College of Physical Therapy. Dr. Edwin P. Sloan, of Bloomington, Ill., analyzed the various cases of goitre, into their constituent classes and illustrated these cases with moving pictures. Dr. Irving W. Potter, of Buffalo, N. Y., demonstrated his method of version with lantern slides. Dr. John O. Polak, of Brooklyn, President of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, gave an obstetrical and gynecological clinic and Dr. Wm. Seaman Bainbridge, of New York City, gave a clinic on Tumors and Cancers.

From 12 to 1 o'clock, a complimentary luncheon was served by the Highland Park General Hospital.

At the afternoon session, Dr. John Phillips, of Cleveland, President of Fellows of American College of Physicians, gave a clinic on Cardiovascular and Pulmonary diseases. Dr. Frank Smithies, of Chicago, demonstrated his method of physical examination in Gastro-intestinal disease. Dr. Geo. W. Crile, of Cleveland, lectured on the Liver,, and Dr. J. E. Sadlier, of Poughkeepsie, N. Y., President-elect of the New York State Medical Society, delivered an address on Preventive Medicine and Post-graduate Medical Study.

At 6:30 p. m. dinner was served to 150 doctors. at the Highland Park Masonic Temple.

The evening session was held in the auditorium of the Highland Park High School. The opening address was by the Mayor, C. E. Gittins, and was followed by two addresses, one on Obstetrics, by John O. Pollak and the other on "The Pathological Gall Bladder," by Dr. Frank Smithies.

This concluded the scientific program and the Highland Park Physician's Club went into executive session and elected the following officers:

President, Dr. Frank Witter; Vice-President, Dr. H. J. Butler; Secretary, Dr. Chas. J. Barone; Treasurer, Dr. Geo. M. Livingston.

The success this clinic attained was due to the combined efforts of the members of the Highland Park Physician's Club and the Superintendent and Board of Directors of the Highland Park General Hospital.

Under the able leadership of our president, Dr. G. Van Amber Brown, in directing the activities of the committees and the officers of the Club, the attendance by far surpassed the expectations of all. There were over 500 registered for the Clinic and all acclaimed the clinic a successful day.

This demonstrated that there is room for one-day clinics in Michigan, and the Highland Park Physician's Club is planning one each year on the day of its annual meeting.

Highland Park Physician's Club,
Chas. J. Barone, Secretary.

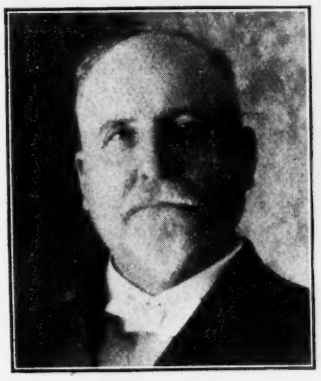
As we are sending final copy to the printer news comes to us of the death of Dr. Herbert M. Rick, of Detroit. His final illness was pneumonia, lasting but four days.

PROGNOSIS OF TETANUS

Astley P. C. Ashhurst, Philadelphia (Journal A. M. A., Dec. 18, 1926), is a firm believer in the efficacy of intraspinal injections of tetanus antitoxin if given early. The patients who recover from tetanus without receiving antitoxin by this route are exceedingly few; those who die if this treatment is used promptly are also very few. To refuse to employ antitoxin by the intraspinal route is, in the present state of our knowledge, absolutely unjustifiable. The diagnosis of tetanus must be made early, and treatment must be very prompt. The promptness of treatment does not always depend on the physician, because the patient may not come under his care early enough. But it is a disgrace to the physician to fail to recognize the disease promptly if the patient is already in his care, and it is inexcusable not to institute drastically efficient treatment simultaneously with the making of the diagnosis. The aim should be: (1) to prevent the further absorption of toxin by abolishing its source (the infected wound); (2) to neutralize that which is being absorbed by immediate intravenous injection of from 15,000 to 20,000 units of antitoxin; (3) to neutralize that which has already been absorbed into the spinal cord by immediate intraspinal injection of from 6,000 to 10,000 units; (4) to administer enough spinal depressants, preferably chloral and bromides, by mouth or by rectum, to exert a physiologic effect, and (5) to keep the patient alive by feeding and nursing. All the antitoxin that is indicated should be given as nearly as can be all at one time and as soon as possible after the diagnosis is made. That amount of antitoxin is enough to last for eight days; by the end of eight days most patients will be convalescent and will not require more. In most cases, repeated doses of antitoxin are a pure waste of valuable and very expensive remedy.

DEATHS

W. A. Oliver, M. D., Camden, Mich., died November 26, 1926, at his home after an illness of several months, due to abdominal carcinoma. He was 73 years old. In 1872, at the age of 18, he began his medical career of 54½ years and at the time of death ranked among the oldest physicians in the state in point of service.



W. A. Oliver, M. D.

He studied in the office of Dr. George Young, Pioneer, Ohio, and after 3 years was given a salary of $300 a year as an assistant. He attended lectures at the Chicago Medical College, but was financially unable to become a graduate. At the time the Michigan State Board of Registration in Medicine was officially organized he was also licensed to practice in Ohio and Indiana because of his geographical location 3 miles from each state line. For 48 years he was in continuous active practice at the same location and in several instances attended three generations of children in the same family. In his early days of practice he traveled by buck-board when possible, but most of the time his calls were made on horse back, carrying saddle bags, over trails which had not yet become roads.

He was twice Mayor in the Village, Health Officer several times, and School Board Member for years. He was County Coroner 12 years and an Officer in the Volunteer Medical Service during the World War. He was made Honorary Member of his Masonic Lodge, having served as the Worshipful Master for 16 years.

At the time of his death he was a member of the Hillsdale County Medical Society, The Michigan State Medical Society, The American Institute of Homeopathy and the Michigan State Homeopathic Society.

Surviving him is his wife, a noble companion for 43 years, and four children.

Dr. William Allen Oliver was born November 5, 1853, in Fulton County, Ohio. He was the son of Nathan and Sarah Oliver, pioneers of that county, moving with them later to Hillsdale County, Mich., where he afterward resided until his death at his home in Camden, November 26, 1926, at the age of 73. At the age of 18 he took up the study of medicine in the office of a preceptor, Dr. Geo. B. Young. This was the custom in those days. He later did collegiate work in Chicago Medical College.

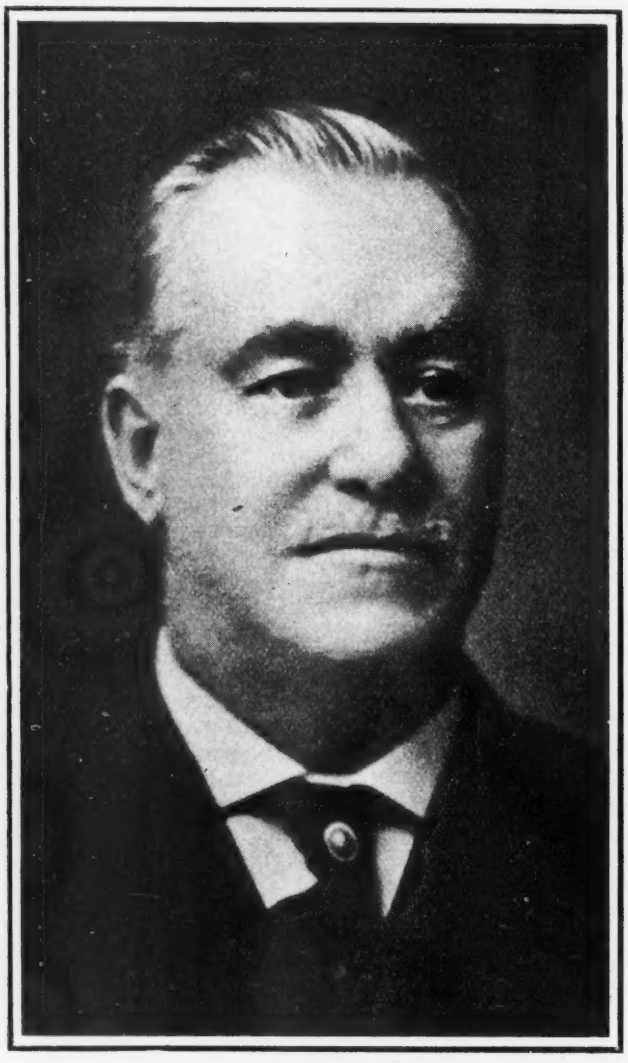
He early located at Camden, Mich., where he practiced nearly 50 years. He was greatly respected and loved in his community and served on

the School Board a number of years and was Mayor of Camden two years.

Be it Resolved, by the Hillsdale County Medical Society, that we extend to the family and friends of Dr. Oliver our sincere sympathy for our mutual sorrow and loss.

D. Emmett Welsh, M. D., Grand Rapids, died December 18, 1926, aged 68 years. Afflicted with diabetes for several years, his declining health for the past six months was accentuated by complicating kidney and heart lesions.

Dr. Welsh, for 25 years, was an outstanding member of the profession, earnestly interested in organizational activity and progress, and ever



D. Emmett Welsh, M. D.

ready to contribute his time and thought to these movements. He was an ex-President and for 15 years served as Treasurer of the Society. At our last Annual Meeting he was elected to Honorary Membership. For 35 years he limited his professional work to that of eye, ear, nose and throat.

Possessing a unique personality he arrested and attracted friends from every avenue of life who mourn his departure. No written tribute can adequately impart the influence Dr. Welsh wielded, nor the spirit that motivated him. Each friend holds some fact, some incident, some deed that caused Dr. Welsh to be endeared to him. The doctor has gone—memories that are pleasant are left to us and form his epitaph.

THE PRESIDENT AND THE SHEPPARD-TOWNER ACT

The opinion of the President of the United States with respect to the Sheppard-Towner Act may be inferred from an address made by him at a meeting of "The Business Organization of the Government," January 21, 1924, in the course of which he said:

"I take this occasion to state that I have given much thought to the question of federal subsidies to state governments. The federal appropriations for such subsidies cover a wide field. They afford ample precedent for unlimited expansion. I say to you, however, that the financial program of the chief executive does not contemplate expansion of these subsidies. My policy in this matter is not predicated alone on the drain which these subsidies make on the national treasury. This of itself is sufficient to cause concern. But I am fearful that this broadening of the field of government activities is detrimental both to the federal and to the state governments. Efficiency of federal operations is impaired as their scope is unduly enlarged. Efficiency of state governments is impaired as they relinquish and turn over to the federal government responsibilities which are rightfully theirs."

The President has reiterated and reaffirmed that opinion in his recent message to Congress transmitting the budget for 1928, in which he said:

"No estimate is submitted for carrying on the work under the maternity and infancy act, approved November 23, 1921, inasmuch as the authorization of appropriations for this purpose was fulfilled with the appropriation for 1927. A bill is now pending before the Congress extending the provisions of that act to the fiscal years 1928 and 1929. If and when that measure becomes law, I propose to the Congress a supplemental estimate for an appropriation to make its provisions effective. I am in favor of the proposed legislation extending the period of operation of this law with the understanding and hope that the administration of the funds to be provided would be with a view to the gradual withdrawal of the federal government from this field, leaving to the states, who have been paid by federal funds and schooled under federal supervision, the privilege and duty of maintaining this important work without aid or interference from the federal government.

"I have referred in previous budget messages to the advisability of restricting and curtailing federal subsidies to the states. The maternity act offers concrete opportunity to begin this program. The states should now be in a position to walk alone along this highway of helpful endeavor, and I believe it in the interest of the states and the federal government to give them the opportunity."

If the Sheppard-Towner Act is a menace to public welfare, why should it be allowed to continue in force for two years, or even for one? "If eventually, why not now?"—Jour. A.M.A., Dec. 18, 1926.

COUNTY SOCIETY ACTIVITY

Revealing Achievements and Recording Service

To County Officers:

This section contains some very interesting reports, reflecting County Society activities that are well directed. It is work of this type that achieves results. It also reflects time, thought and effort on the part of officers and committees. We are off on a new year. New presidents are assumming office. We proffer congratulations and look forward confidently, that under your leadership, better and extended results will ensue. The opportunity of service confronts each officer. Reflect this service by action that is sustained and enthusiastic. Plan your year of work, outline a concrete program of objects to be attained, press your committees for action, lead the way. Success or failure is your responsibility. We stand ready to aid; command us.

SIGNIFICANCE OF REPORTS BY COUNTY MEDICAL SOCIETIES

The reports of County Medical Societies made by the Secretaries from month to month indicate definitely the interest in County Societies by the membership, and record accomplishment from month to month and from year to year. The Journal has published these records and they now serve as a partial history of progress. Comparisons are indicators of accomplishment and determine bases for deductions. An analysis of the records made during the past three years shows that in 1924 the total reports made to the Secretary of the Michigan State Medical Society numbers 50; in 1925, 79, and this year, 1926, 110. From 1924 to 1925 there was an increase of 29 reports or 58 per cent, from 1924 to 1926, an increase of 69 or 138 per cent. There is no doubt but what these reports reflect the increased activity of the County Medical Societies throughout the state as a whole. It is also true that only a part of the activities are reported which have been determined by visits to the County Societies and the Secretaries. The Scretaries, officers and committees are complimented in achieving this record of progress, a record worthy of the profession and thoroughly appreciated by the public. The following compilation reveals the detailed and comparisons over the past two years with that of 1924, which is the period previous to the adoption of the new program by the Michigan State Medical Society and the employment of an Executive Secretary. Were it possible to secure complete records of all Societies there is no doubt but what the comparisons of these would reveal the same story—a 130 per cent increase in accomplishment in 40 of the 54 County Medical Societies.

NUMBER OF REPORTS BY COUNTIES AND YEARS

	1924	1925	1926
Alpena — Antrim, Charlevoix, Emmett, Cheboygan		8	8
Barry		1	1
Bay	1	3	2
Berrien	2	1	1
Branch		2	1
Calhoun	5	3	7
Cass			
Chippewa—Luce, Mackinac			2
Clinton	1	3	1
Delta			
Dickinson-Iron			
Eaton		1	4
Genesee	5	4	5
Gogebic	1	5	
Grand Traverse—Leelanaw			4
Gratiot—Isabella, Clare	4	4	8
Hillsdale	3	3	3
Houghton—Baraga, Keweenaw	9	11	10
Huron			
Ingham	3	3	3
Ionia—Montcalm	6	5	4
Jackson	1	3	2
Kalamazoo—Van Buren, Allegan	1	2	6
Kent	1	1	2
Lapeer		1	
Lenawee		1	6
Manistee			
Macomb			5
Marquette—Alger		1	
Mason			
Mecosta		1	1
Menominee			1
Midland			1
Monroe	1		
Muskegon		5	3
Newaygo	1	1	2
Oakland		6	1
Oceana			1
O. M. C. O. R. O.—Otsego, Montmorency, Crawford, Oscoda, Roscommon, Ogemaw			
Ontonagon—Osceola, Lake			3
Ottawa			
Presque Isle			
Saginaw			
Sanilac	1		
Schoolcraft			
Shiawassee		1	5
St. Clair	2	1	7
St. Joseph	1		
Tri-County—Wexford, Kalkaska, Missaukee		1	4
Tuscola		1	
Washtenaw	1	1	1
Wayne		6	4
Totals	50	79	119

NOTE:—There reports are not based on reports of total meetings but include, some of them, a number of meetings as for example, Genesee in five reports recorded 85 meetings, and Ingham eight meetings in three reports.

NEW YEAR'S WISHES AND FAREWELL

As the old year passes into the new the Executive Secretary of the Michigan State Medical Society recalls the activities of the year—the work with the Councilors in conducting the Post-Graduate Conferences, the Officers of the State Society and Committees, the Officers of County Medical Societies in establishing more constructive and extensive programs of activity. Working bases have been established with several other State Organizations. The Minimum Program has been placed in operation in more than 40 County Societies, special educational work for the public has been engaged in with success. The Periodic Physical Examination Program is in action. An attitude of study toward problems as they exist in

each County Society has developed, the committee and conference method of accomplishment has been emphasized and back of all has been an extensive growing spirit of friendship. Friendship in reality in synonymous with accomplishment. It makes a profession a joy and a life a happy one. This old passing year will recall to each and all our accomplishments and wish us continued joy and happiness as we enter into the new year. The Executive Secretary personally extends a similar wish. And with the passing of the old year comes also the passing of the office of Executive Secretary so ordered by the Executive Committee of the Council. Such action does not deter me as your past Secretary wishing the Council, the State Medical Society and all County Medical Societies a most successful New Year. Personally, I sever my connections with regret, but know at the same time that a record of work well done in new fields has been written. I move on into other fields, always to be interested in health, the most precious possession of each individual.

HARVEY GEORGE SMITH.

POST-GRADUATE CONFERENCES

The three Post-Graduate Conferences held at Owosso, Saginaw, and Port Huron during the month of December brought to a close for the year 1926, the State activity in Post-Graduate Education. One hundred eighty-eight doctors attended the programs which continues the evidence of the past that the doctors throughout the state desire and demand service from their parent organization. The general expression by one and all of the doctors at each Post-Graduate Conference was one of definite satisfaction. And the expression of satisfaction was proved by the fact that the attendance at the last lecture on the program was as high as that at any other. The Post-Graduate Conference idea is accepted by the membership as an activity of special definite value.

The programs presented at the Owosso, Saginaw and Port-Huron Post-Graduate Conferences are the following:

OWOSSO PROGRAM

December 1, 1926

10:15—Opening Statements.
Henry Cook, Councilor, Chairman.

10:30—Therapeutics of Common Heart Lesions.
Walter Wilson, M. D., Detroit.

11:00—Post-Operative Complications.
Argus McLean, M. D., Detroit.

11:30—Practical Points in Rectal Examinations.
L. J. Hirschman, M. D., Detroit.

12:00—Luncheon.

2:00—Industrial Surgery. G. C. Penberthy, M. D., Detroit.

2:30—Nasal Infections. B. N. Colver, M. D., Battle Creek.

3:00—Contagious Diseases—Diphtheria.
Bernard Bernbaum, M. D., Detroit.

3:30—Diagnosis and Treatment of Acute Infections of the Heart.
Walter Wilson, M. D., Detroit.

4:00—Acute Abdominal Diseases.
Angus McLean, M. D., Detroit.

4:30—Treatment of Hemorrhoids and Rectal Fistula.
L. J. Hirschman, M. D., Detroit.

BOARD OF COMMERCE, SAGINAW PROGRAM

December 9, 1925.

10:15—Opening Remarks.
J. H. Powers, M. D., Councilor, Chairman.

10:30—Physical Examinations and Demonstrations.
E. L. Eggleston, M. D., Battle Creek.

11:00—Psychiatry and the General Practitioner.
A. L. Jacoby, M. D., Detroit.

11:30—Treatment of Pneumonia.
Geo. E. McKean, M. D., Detroit.

12:00—Luncheon—Bancroft Hotel.

2:00—Skin Clinics. H. R. Varney, M. D., Detroit.

3:00—Laboratory Aids in Diagnosis.
J. J. Moore, M. D., Chicago, Ill.

3.30—Treatment of Nephritis—Acute and Chronic.
Geo. E. McKean, Detroit.

4:00—Psychiatrical Analyses. A. L. Jacoby, M. D., Detroit.

4:30—Medical Management of Ulcer.
E. L. Eggleston, Battle Creek.

PORT HURON PROGRAM

December 10, 1926.

10:00—Opening Statements.
A. J. MacKenzie, Councilor, Chairman.

10:30—Pneumonia. Stuart Pritchard, M. D., Battle Creek.

11:00—Medical Management and Treatment of Gastric Ulcer.
John B. Youmans, M. D., Ann Arbor.

11:30—Dermatology. R. A. C. Wollenberg, M. D., Detroit.

12:00—Luncheon.

2:00—Pre-Natal Care. L. W. Haynes, M. D., Detroit.

2:30—Contagious Diseases—Scarlet Fever, Value of Vaccines.
C. C. Young, State Bacteriologist, Lansing.

3:00—Bronchiectases. Stuart Pritchard, M. D., Battle Creek.

3:30—Eczema. R. A. C. Wollenberg, M. D., Detroit.

4:00—Arthritis—Etiology and Management.
John B. Youmans, M. D., Ann Arbor.

4:30—Essential Obstetrical Procedures.
L. W. Haynes, M. D., Detroit.

CALHOUN COUNTY

The 50th Annual Business meeting of the Calhoun County Medical Society was called to order in the bridge room of the Post Tavern, at 5 o'clock, Tuesday, December 7, 1926, the President, Dr. James A. Elliott, presiding. The minutes of the previous meeting were approved as printed in the Bulletin. Dr. Gorsline read a communication from "Hygeia" relative to the subscriptions received from the County Society.

The following applications for membership were given their first reading: Dr. Fahndrick, Dr. Wilma C. Weeks, Dr. A. J. Rivers, Dr. Caroline Hilborn, and Dr. R. H. Hilborn.

Bills were presented as follows: Phoenix Printing Company, $15.50; Dr. C. W. Brainard, sending postal cards, $6.10; theatre tickets, $11.50; total, $17.60; Dr. L. E. Verity, posting Bulletin, $1.60. The bills were ordered to be paid. It was moved by Dr. Sleight and seconded that the Secretary-Treasurer's report as printed in the Bulletin be accepted. The motion was carried.

Dr. Kingsley reported for the Board of Directors to the State Society, stressing the importance of periodical physical examinations, which was one of the main topics discussed at the last state meeting.

Election of officers resulted as follows:

President, Dr. W. F. Martin; Vice-President, Dr. R. H. Harris; Secretary-Treasurer, Dr. H. B. Knapp; Delegates to State Society, C. S. Gorsline and Geo. C. Hafford; Alternate Delegates, A. F. Kingsley and W. L. Godfrey.

Moved by Dr. Gorsline a vote of thanks be extended to the Secretary for the services that he has performed during the past two years. Motion carried.

The President, Dr. Elliott, said a few words, thanking the various officers and members of the Society for their co-operation during the past year.

Dr. Winslow mentioned the death of Dr. A. E. Halstead, of Chicago. Dr.Colver reported for the Necrology Committee.

On motion of Dr. Sleight, seconded by Dr. Martin, it was unanimously voted that the three members of the Calhoun County Medical Society namely: W. L. Godfrey, E. L. Parmeter, and J. H. Kellogg, who have completed 50 years in the practice of medicine, be recommended to the Michigan State Medical Society for honorary membership, and that the Calhoun County Society hereby place them as honorary members of this body.

There was an informal discussion of the apparent need in this county of a place for the treatment of tuberculosis in children, and a resolution was passed urging the County Board of Supervisors to provide a children's pavilion annex to the Calhoun County Hospital. On motion it was voted to refer this matter to the Anti-Tuberculosis Committee of the Society for action, with the recommendation that the matter of a preventorium at the County Hospital be also provided. This subject was brought up by Dr. Serio, of Albion, and had the unqualified support of each member present.

A short address by the retiring President, Dr. Elliott, completed the order of business. Adjournment to the Post Tavern dining room, where dinner was served and a scientific program followed.

The ladies in attendance were taken to the Regent Theatre for an evening's entertainment.

Officers of the Society for 1927 as follows:

President—Dr. W. F. Martin.

Vice-President—Dr. R. H. Harris.

Secretary-Treasurer—Dr. H. B. Knapp.

Delegates to State Society—C. S. Gorsline, George C. Hafford.

Alternate Delegates—A. F. Kingsley, W. L. Godfrey.

Member Medico-Legal Committee — W. H. Haughey.

Councilor, Third District—R. C. Stone.

Board of Directors—M. A. Mortensen, Thos. Zelinsky, A. F. Kingsley, George A. Haynes and Jas. A. Elliott.

Program Committee—R. C. Stone, Jos. Rosenfeld, G. C. Hafford, B. G. Holtom, E. L. Eggleston, and J. S. Pritchard.

Entertainment Committee—H. H. Lowe, A. T. Hafford, R. D. Sleight, S. K. Church and M. J. Capron.

Anti-Tuberculosis Committee—C. R. Hills, H. R. Allen, E. C. Derickson, G. A. Haynes and L. S. Hodges.

Public Health Committee—A. F. Kingsley, P. P. Serio and Chas. W. Heald.

Necrology Committee—B. N. Colver, J. W. Gething and Wilfrid Haughey.

Venereal Disease Committee—A. A. Hoyt, S. R. Eaton, A. W. Nelson, J. J. Holes and A. T. Hafford.

Illegal Practice Committee—W. H. Haughey, R. H. Harris and Geo. C. Hafford.

Legislative Committee—C. S. Gorsline, Thos. Zelinsky and H. M. Lowe.

Public Education Committee—Stella Norman, E. M. Chauncey, G. B. Gessner, E. P. Russell and R. H. Baribeau.

LENAWEE COUNTY

I hope you will not think I am indulging in self-praise when I tell you that I feel that our Society in Lenawee County has brought to a close another year and perhaps one of the most successful years in a long time.

The December meeting of the Lenawee County Medical Society was held at Adrian, Michigan, December 3, 1926, taking the form of the Annual Banquet, which was served at the Lenawee Hotel.

This year a new idea for this county was promulgated by inviting the members of the Lenawee Bar Association to meet with us. The result was a good turnout of over 60 physicians and members of the bar with their wives.

Our guest of honor was Dr. James Inches, of Detroit, who spoke to us for what seemed like a very short time, though in fact was over two hours, illustrating his lecture with lantern slides and motion pictures. It was a wonderful entertainment and gave us a knowledge of Africa and its people that could never be obtained from books. It is utterly impossible for us to express in words the great appreciation we feel toward Dr. Inches for coming out from Detroit with his equipage and for his generosity in what he told and showed to us of his marvelous trip through the length of Africa from Alexandria to Cape Town.

This meeting closes our year which has been very successful in a great many ways, not many things have been accomplished that really stand out as great, but, we are progressing and we feel that a real constructive program of Scientific Medicine can be put through next year. Our success this year lies entirely in the excellent spirit of good fellowship between our members and the willing co-operation of the members with our officers.

Special credit is due President Mammel, for it was he who started our year with a wonderful meeting at his home and for the way he finished the year by getting Dr. Inches to come out and close our year with a fitting climax as I have described above.

Our next meeting will be held in January, probably at Blissfield, Dr. A. E. Lamley being our prospective host.

A complete report of the past year and a report of our election of new officers for the next year will be made in January.

R. G. B. MARSH, Secretary.

HOUGHTON COUNTY

The Houghton County Medical Society held its regular monthly medical meeting at the Miscowaubic Club, Calumet, Tuesday, December 7, with 15 members present. After reading of minutes of the previous meeting and allowing of bills, Dr. K. C. Becker of Mohawk read a very interesting paper on "Psychoanslysis," Dr. O. A. Kohlhaas, of Calumet, read a paper on "Prostatectomy. He demonstrated various instruments and the technic of sacral block.

These papers were fully discussed by those

present and were enjoyed by all. The Society then adjourned to lunch. Hope you will be able to read this report. Wishing you a very Merry Christmas and a Happy New Year,

Fraternally,
G. C. Stewart, Secretary.

KALAMAZOO, ALLEGAN AND VAN BUREN COUNTY

The November meeting of the Kalamazoo Academy of Medicine was held at the United States Veterans Hospital No. 100, Camp Custer, November 16, 1926 as guests of their staff.

The afternoon was profitably and enjoyably spent in going over the hospital viewing the equipment, and the work of the different departments.

The banquet served at 6:30 was a sumptuous repast, made the more enjoyable by a musical program rendered by patients of the institution.

Succeeding the dinner the meeting was called to order by the President, Dr. McNair. The minutes of the previous meeting were read and approved as printed in the bulletin. Several communications for the Society were read.

Dr. V. H. Wells, Lawton, and Dr. Hugo Aach, Kalamazoo, were voted into active membership of the Society.

The President appointed to the Legislative Committee authorized at the last meeting:

Dr. Frederick Shillito, chairman; Dr. D. P. Osborne, Dr. A. S. Youngs, Dr. O. H. Stuck, Dr. Wm. R. Young.

A Committee on Medical Relief in Disaster to conform to the general plan of the State Society and the American Medical Association was appointed.

Chairman: The Secretary of the Society; Dr. Ross U. Adams, Dr. John T. Burns, Dr. Leo J. Crum, Dr. A. E. Henwood, Dr. R. J. Hubbell, Dr. C. A. Youngs.

Civilians appointed to this Committee were:

Mr. Bartlett C. Dickinson, Mr. J. Stanley Gilmore, Mr. David Hersfield, Mr. Arthur Ruppert.

As no further business demanded the attention of the Society the meeting was turned over to Dr. Dobson, chief medical officer in charge. Dr. Dobson extended the greetings of the staff and gratification at the excellent attendance. After a few introductory remarks the meeting was turned over to Dr. Hentz who had charge of the clinical program, which was carried out as printed in the Bulletin.

The meeting was returned to our President and a motion was made by Dr. Andrews, supported and unanimously carried, that the Society extend our most sincere thanks to the Staff of the Veterans Hospital and their co-workers, for the entertainment of the afternoon, the excellent repast and entertainment of the evening and the very instructive scientific program which had been rendered.

Dr. McNair gave a brief talk in which he expressed the sentiments of the Society, calling our attention to the benefits to be derived from the meeting. He was sure that we all had an ever increasing respect and personal liking for each member of the Staff. He was also quite sure that from now on each one of us would have a personal pride in the institution for the excellency of its equipment, the unsurpassed kindness and treatment afforded the patients, and scientific attainments of the Staff. He expressed his deep appreciation for the entertainment adn songs of the patients and for the entire program of the afternoon and evening.

KENT COUNTY

The Kent County Medical Society held their Annual Meeting on December 8, 1926, at the Pantlind Hotel, Grand Rapids, Mich. A dinner meeting was held following which Rev. Alfred W. Wishart of the Fountain Street Baptist Church addressed the Society on the subject, "Religion and Medicine." His address was largely concerned with the facts in common between religion and medicine with an explanation of the rationale of religion for a physician.

Dr. Vernor M. Moore of Grand Rapids was elected President for the ensuing year. Other officers elected were Dr. Norman S. Vann, Vice President; Dr. H. T. Clay, Secretary-Treasurer. The delegates to the Michigan State Medical Society of the year 1926 were reelected, this being considered a good policy in view of their experience and knowledge of the workings of the House of Delegates.

The present membership of the Society is 197, which represents a net gain of 11 members. There has been held fifteen meetings, six of which were addressed by local members of the Society. The use of local speakers we believe is worthy of mention, as evidence of co-operation among the membership. There is a greater solidarity among the membership this year than there has been for a great many years and a better unity of purpose for the betterment of the future of medicine.

H. T. Clay, Secretary.

GENESEE COUNTY

The following are officers of Genesee County Medical Society, 1926-1927:

President—Dr. Wm. H. Marshall.

Vice President—Dr. L. W. McKenna.

Secretary—Dr. G. J. Curry.

Treasurer—Dr. G. R. Goering.

Medico Legal Officer—Dr. C. H. O'Neil.

Delegates to the State Society—Doctors C. F. Moll and H. E. Randall.

Alternate Delegates—Doctors J. G. R. Manwaring and J. Benson.

Board of Directors—Doctors F. Miner, C. Chappel, W. Winchester, A. Paterson and F. Reeder.

Legislative Committee — Doctors H. Cook, Chairman; L. L. Willoughby, C. H. O'Neil, H. E. Randall and M. S. Knapp.

Public Education Committee—Doctors C. B. Merritt, Don Knapp and J. Curtin.

Public Health and Civic Relations Committee—Doctors E. D. Price, Chairman; W. Winchester, and L. Jones.

Membership and Attendance Committee—Doctors E. D. Pierce, Chairman; W. Winchester and L. Jones.

Membership and Attendance Committee—Doctors H. Knapp, Chairman, and D. Brasie.

Research Committee—Doctors L. Himmelberger, Chairman; G. J. Curry and Berton Chambers.

Tuberculosis Committee—Doctors W. Winchester, Chairman; A. Reynolds and F. Miner.

Library Committee—Doctors H. E. Randall, Chairman; J. Curtin and L. Himmelberger.

Entertainment Committee—Doctors C. F. Moll, Chairman; W. G. Bird and A. Thompson.

Program Committee—Doctors Merton Chambers, Chairman, and G. J. Curry.

Ethics Committee—Doctors B. E. Burnell, A. Patterson and M. S. Knapp.

Scientific Teams (Senior)—Doctors J. G. R. Manwaring, Surgery; M. C. Knapp, Medicine; D. Jickling, Pediatrics, and Max Burnell, Obstetrics.

Scientific Teams (Junior)—Doctors L. Bogart, General Surgery; Merton Chambers, Medicine; R. A. McGarry, Skin and Syphilis; G. J. Curry, Orthopedic Surgery.

Secretary's report Genesee County Medical Society, 1925-1926:

Total Membership	111
Delinquents	10
Associate Members	3
Honorary Members	4
(Doctors Burr, Callow, Handy and Gould.)	
New Members	3
Average Attendance	60%
Number of meetings of Genesee County M.S.	14
Number of Speakers	14
Number of Out of Town Speakers	13

The Chairman of the Program Committee arranged the subjects to conform to the idea of a diversified post-graduate course extending over the official year. The various papers and talks covered practically every field in medicine and surgery.

All meetings of this Society except the last three, have been reported to the Michigan State Medical Society, and have been published in The Journal. These will appear in the October or November issue.

The Sixth District Meeting was held at Flint, December 9, 1925.

The M. S. M. S. Conference (Post-Graduate) was held at Bay City, April 7, 1926.

The Genesee County Medical Society was entertained at the University Hospital, April 28, 1926.

George J. Curry, Secretary.

ST. CLAIR COUNTY

A postponed regular meeting of the Saint Clair County Medical Society was held at the Hotel Harrington, Port Huron, Michigan, at 6 p. m., December 9, 1926, with the following members and guests present: Doctors Waters, Derck, Ryerson, Burley, Attridge, Heavenrich, Vroman, Morris, Callery, Cooper, McCue, McKenzie, O'Sullivan, Clancy, Windham, Smith, Wellman, McColl, Moffett, Kesl, Bovee, Wheeler, Guy L. Kiefer, Bert Estabrook and C. F. Thomas.

Following dinner and a social half-hour the business session was held in the hotel parlors. Upon motion duly made, supported and carried the regular order of business was suspended and the speaker of the evening, Dr. Guy L. Kiefer was introduced by the President.

Dr. Kiefer made a splendid address upon Diphtheria and Scarlet Fever, taking up in the course of his address the following points: the present virulence of Diphtheria in the City of Detroit; the advisability of giving one large dose of antitoxin upon clinical diagnosis before consideration of the bacteriological findings; toxin-antitoxin immunization, its value and its apparent failure to produce immunity in about 15 per cent of cases; the reliability of the Schick Test; the proper dosage of antitoxin in Diphtheria, as follows, for mild early cases, 10,000 units, for moderately severe cases, from 20,000 to 30,000 units, and severe cases, 40,000 units; the lessened mortalits of scarlet Fever as compared to 15 years ago, which Dr. Keifer attributed to better nursing, diet and public health education all of which prevented complications such as nephritis, otitis, cellulitis, etc.; the disease should be combatted now because of the after effects rather than because of its mortality rate; the discovery o fScarlet Fever antitoxin should be credited to the Doctors Dick of Chicago; the use of Scarlet Fever antitoxin is followed by lessened toxemia and fewer complications and is justified; in severe cases convalescent serum gives markedly good results and the speaker suggested that hospitals keep a supply of same always on hand; one-quarter of the curative dose of Scarlet Fever antitoxin will give a passive immunity to an exposed individual for a limited time, and in cases of continuing exposure the dose may be repeated without danger; dangers of anaphylaxis are not great and this phenomena should not deter members of the profession from use of serums; the serums of the present day were safer and their use not followed by untoward results because the present day serums were properly aged; regarding active immunity for Scarlet Fever the speaker stated that such could be produced by successively increased doses of S. F. toxin or by Larsens' Serum; in exposures to Scarlet Fever the speaker seemed to think it would be unwise to attempt immunization by any toxin mixture; in conclusion Dr. Kiefer, by request of President Moffett, discussed how modern Boards of Health had increased the practice of medicine and developed the various specialties.

Dr. Bert Estabrook followed Dr. Kiefer and briefly covered the following points: In Diphtheria passive immunity should be given all exposures irrespective to length of time exposure had existed; that he had seen Clinical Diphtheria in twenty-one cases where toxin-antitoxin immunization had been attempted; that all cases given toxin-antitoxin should be Schick tested six months afterward; that parents should be told that toxin-antitoxin was not always a preventative and that 15 per cent were failures; that high virulence such as existed at present in Detroit, frequently overcame partial immunity; that in epidemics where virulence is high antitoxin should be given early in clinical Diphtheria irrespective of history of attempted immunization, etc.; that in cases of laryngeal involvement unless one may be sure that condition is spasmodic croup always give antitoxin to cover the possibility of Diphtheria; in Scarlet Fever the speaker believed the toxemia and complications were definitely lowered by previous tonsillectomy, adenectomy and proper dental prophylaxis; that manufactured S. F. antitoxin is more potent than convalescent serum because it contains many more units of protection; that Larsens' Toxin may be given with safety to exposures to Scarlet Fever, even though in some few cases a dermatitis similar to the S. F. rash occurs.

The President then called upon Dr. C. C. Clancy, Past President of the State Medical Society, to close the program and thank the guests for the very profitable evening. This Dr. Clancy did in his usual fine manner. The meeting adjourned at 9:55 p. m. after a rising vote of thanks was given the speakers of the evening.

George M. Kesl, Secretary.

BARRY COUNTY

The House elected the following officers in our Society for the year 1927:

Dr. A. W. Woodbine, Hastings, President.

Dr. Guy C. Keller, Hastings, Secretary-Treasurer.

Dr. B. C. Swift, Middleville, Delegate State Society.

Dr. C. K. Brown, Nashville, Alternate Delegate State Society.

Dr. R. W. Griswald, Freeport, Medical Legal Advisor.

During the last year we have had 12 regular Society meetings and one public city lecture by Dr. Kellogg, of Battle Creek.

Of our 12 meetings, five have been of home talent work, two were laymen speaker's programs, one a clinic and four were meetings with out of county speakers.

For about four months we have been having a weekly health talk in the leading county paper written by various members of the Society. We will continue these health talks throughout the coming year.

Guy C. Keller, Secretary.

BAY COUNTY

Monday evening, November 29th, the Society was addressed by Herbert V. Barbour, Esq., of Detroit. He spoke in a very interesting manner on the subject of Malpractice Suits. The meeting was held at the Elk's Club with dinner served at 6:30 p. m.

Wednesday evening, December 8th, retiring President, Dr. V. H. Dumond was host to the Society at a turkey dinner held at the Wenonah Hotel. The occasion was the Annual Meeting at which the following officers were elected:

President, Dr. D. T. Smith, Omer, Mich.

Vice President, Dr. E. F. Crummer, Essexville, Mich.

Secretary-Treasurer, Dr. L. Fernald Foster, Bay City, Mich.

Medico-Legal Committee, Dr. A. W. Herrick, Bay City, Mich.

Delegate, Dr. V. H. Dumond.

Alternate, Dr. J. W. Hauxhurst.

L. Fernald Foster, Secretary.

EATON COUNTY

The Annual Meeting of the Eaton County Medical Society was held at the Charlotte Hotel the evening of December 2nd, 1926.

Following dinner the Society proceeded to the transaction of business and election of officers with the following results: President, C. S. Sackett, Charlotte; Vice President, F. W. Sassaman, Charlotte; Secretary-Treasurer, H. J. Prall, Eaton Rapids; Delegate, P. H. Quick, Olivet; Alternate, Stanley Stealey, Charlotte; Legislative Committee, J. B. Bradley of Eaton Rapids.

Following a discussion of other matters of local interest the meeting adjourned.

H. J. Prall, Secretary-Treasurer.

GOGEBIC COUNTY

The Gogebic County Medical Society in its annual meeting elected the following officers for 1927: President, Dr. Paul R. Liberthal; Vice President, Dr. T. S. Crosby; Secretary-Treasurer, Dr. Louis Dorpat. The next meeting will be held on Monday, January 10, at 8 o'clock, p. m. in the offices of the Ironwood Health Department.

Louis Dorpat, Secretary.

GRAND TRAVERSE-LEELANAU COUNTY

The regular meeting of the Grand Traverse-Leelanau County Medical Society was held at the General Hospital, Tuesday evening, December 7th. In the absence of the President, Dr. Sladek, the Vice President, Dr. Swartz, called the meeting to order at 8 o'clock.

The following officers were elected for the ensuing year:

President—Dr. F. G. Swartz.

Vice President—Dr. George F. Inch.

Secretary-Treasurer—Dr. G. A. Holliday.

Medico-Legal Counsel—Dr. F. P. Lawton.

Communication from Dr. Warnshuis relative to a Local Legislative Committee, was read, and the Chair appointed the following to serve:

Doctors Fred Murphy, L. Swanton, H. B. Kyselka, George F. Inch and G. A. Holliday.

Dr. J. W. Gauntlett read a very instructive paper on "The Nothing in the Eye as a Diagnostic Point." A full discussion followed. Adjourned.

G. A. Holliday, Secretary.

IONIA-MONTCALM COUNTY

The Annual Meeting of the Ionia-Montcalm Medical Society was held at Hotel Belding, Thursday evening, December 9th.

After partaking of an excellent banquet the following program was given:

"Eye Emergencies," Dr. John R. Rogers, Grand Rapids.

"The Physiology and Pathology of Pregnancy," Dr. Alexander M. Campbell, Grand Rapids.

Dr. C. T. Pankhurst, of Ionia, formerly of North Star, transferred his membership to the Ionia-Montcalm County Society.

Dr. Levi E. Duval, Ionia, and Dr. J. M. Irving, Lyons, were elected to membership in the Ionia-Montcalm Society.

The following officers were elected for 1927:

President—Dr. C. H. Peabody, Lake Odessa.

Vice President—Dr. H. B. Weaver, Greenville.

Secretary-Treasurer—Dr. H. M. Maynard, Ionia.

Delegate—Dr. R. R. Whitten, Ionia.

Alternate Delegate—Dr. Geo. E. Hom, Entrican.

H. M. Maynard, Secretary.

INGHAM COUNTY

At the present date there are 89 members in good standing in the Ingham County Medical Society as compared to 96 in 1925. The difference in number is due to six members being delinquent in dues, three leaving for New York, two for Florida and one for Detroit. There was one death during the year and one member has apparently dropped out due to a prolonged illness. During the year we elected five men to membership, so that we have a loss of eight men as compared to last year.

There were nine scientific meetings held during the year with an average attendance of 47. There were four noon luncheons for business meetings, with an average attendance of 44. There were two social meetings and our annual picnic with an average attendance of 60. Average total attendance of 60. Average total attendance of all meetings was 50 or about 57 per cent of total membership.

The outstanding feature of the year was the holding of the State Meeting in Lansing in September. Every member of the Society co-operated so willingly and well that the meeting was a real success. We received letters of commendation from several sources to that effect. We may well be proud of our work on that particular occasion.

In reviewing the year's work we find that we have practically fulfilled the requirements of the Minimum Program in every respect.

At our Annual Meeting the following officers were elected: H. S. Bartholomew, President; K. Brucker, Vice-President; C. F. DeVries, Secretary-Treasurer.

C. F. DeVries, Secretary.

WASHTENAW COUNTY

Presidents and Secretaries since 1910 were:

1910—President, James F. Breakey; Secretary, J. W. Keating.

1911—President, J. W. Keating; Secretary, J. A. Wessinger.

1912—President, F. R. Waldron; Secretary, J. A. Wessinger.

1913—President, Wm. Blair; Secretary, J. A. Wessinger.

1914—President, T. Klingman; Secretary, J. A. Wessinger.

1915—President, A. W. Hewlett; Secretary, J. A. Wessinger.

1916—President, J. G. VanZwaluwenburg; Secretary, J. A. Wessinger.

1917—President, R. A. Clifford; Secretary, J. A. Wessinger.

1918—President, Mark Marshall; Secretary, J. A. Wessinger.

1919—President, Udo Wile; Secretary, J. A. Wessinger.

1920—F. R. Waldron; Secretary, J. A. Wessinger.

1921—President, H. H. Cummings; Secretary, J. A. Wessenger.

1922—President, J. A. Wessinger; Secretary, W. E. Forsythe.

1923—President, J. A. Wessinger; Secretary, W. E. Forsythe.

1924—President, T. S. Langford; Secretary, W. E. Forsythe.

1926—President, G. F. Muehlig; Secretary, A. D. Wickett.

1926—President, H. D. Barss; Secretary, T. S. Langford.

Theron S. Langford, Secretary.

DETROIT SOCIETY OF NEUROLOGY AND PSYCHIATRY

The Detroit Society of Neurology and Psychiatry held its second regular meeting for the current year at the Henry Ford Hospital, Thursday, December 16th. The following scientific program was given by the members of the staff of the Henry Ford Hospital:

Neurosurgical Cases ..... Dr. J. H. McMillan.

Case Presentation ..... Dr. Frank J. Sladen.

Case of Convulsions with Peculiar Crampton's Phenomena ..... Dr. J. C. Moloney.

Presentation of Neuropathological Material Dr. F. W. Hartman.

1. Questionable Landry's Paralysis;
2. Psychopathic Personality with Masochistic Reactions ..... Dr. G. B. Smith.

Some Difficulty in Diagnosing Spinal Chord Tumors ..... Dr. A. S. Crawford

Neuropsychiatric Diagnosis in the General Hospital ..... Dr. Thos. J. Heldt.

The meeting was attended by both local and out of town members.

TOLERANCE TO DIGITALIS IN EXPERIMENTAL DIPHTHERIA

That digitalis is an effective circulatory stimulant is confirmed by the series of experiments reported on by Harry Gold, New York (Journal A. M. A., Dec. 18, 1926). A considerable rise in blood pressure when it was previously low occurred in a number of animals after varying doses of ouabain. The study shows that direct synergism between diphtheria toxin and digitalis does not exist even though the heart has been severely injured by the toxin, and that diphtheria toxin does not diminish the tolerance of an animal to digitalis unless that animal has been reduced to a state of extreme circulatory depression or collapse. There are clinical conditions in which patients become more susceptible to the digitalis bodies. It has been frequently seen that some patients with heart disease in the terminal stages become extremely susceptible to the toxic action of digitalis. It is doubtful, however, whether the increased susceptibility to digitalis observed in nearly moribund animals has any important bearing on the clinical problem of the use of digitalis in patients with diphtheria. The experimental work does justify the expectation that in certain cases of circulatory disturbances produced by diphtheria, digitalis in the proper dosage would be of value.

BOOK REVIEWS AND MISCELANEY

Offering Suggestions and Recommendations

SURGICAL ANATOMY OF THE HUMAN BODY—John B. Deaver, M. D., Vol. II. Price for three volumes, $35.00. P. Blakiston's Son & Co., Philadelphia.

This is the revised second volume of this three volume set of Surgical Anatomy. The regions covered are the upper extremities—neck, shoulders, back and lower extremities. It is profusely illustrated with accurate comprehensive drawings and pictures. Primarily it is an anatomy that is complete in text and details. What is more, and of far greater importance is that it is an anatomy emphasized on the principles of surgery. Coming from the pen of a surgeon of outstanding attainment and ability, this text assumes a role of authority. No surgeon can afford to be deprived of this reference assistant to his operative work.

THE PRACTICE OF MEDICINE—A. A. Stevens, M. D., Professor of Applied Therapeutics in the University of Pennsylvania. Second Edition, entirely reset. Octavo of 1174 pages. Cloth, $7.50 net. W. B. Saunders Company, 1926. Philadelphia and London.

The author has very completely set forth a description of internal diseases in a manner that is in accord with our present knowledge. It is concise, amply complete in stressing pathology, diagnosis and treatment. This revised edition is complete, represents untold labor because of its thoroughness. It is a text that should supplant the old schoolbook text too frequently found in the doctor's library. The placing of this Practice on your reference shelf will provide one with the most practical medical text existant.

RECENT ADVANCES IN PHYSIOLOGY—C. Lovatt Evans, London. Second Edition. Price $3.50. P. Blakiston's Son & Co., Philadelphia.

Just what its title states. It meets its title completely and leaves nothing for the reviewer but to commend. We urge, too, that many medical men may well read this text to disabuse their minds of principles and functions that have been disproven.

SKETCH OF THE HISTORY OF THE MAYO CLINIC AND THE MAYO FOUNDATION—185 pages. Cloth, $3.50.

An estimate and accurate picture of the development of all phases of the work of this great clinic—from the earliest beginnings to the present. Not only of interest from the historical standpoint, but of value in aiding individuals and institutions to perfect their organizations.

We regret, though, that the compiler did not see fit to include business methods imparting details of registry, records, histories, financing and the relationship and duties of staff members. As it is, it is a fair year book comparable to that issued by many institutions.

PNEUMOCONIOSIS (Silicosis)—A Roentgenologist's study. Henry K. Pancoast, M. D. Cloth, 186 pp., price $4.00. Paul B. Hoeber, Inc., New York City.

This is a splendid presentation of a study of pneumoconiosis based on findings uncovered in X-ray examinations of numerous chests. Excellent plates are included accompanied by notes on existant pathology. As such then it is valuable to all X-ray men and the frequency of the condition warrants steps for prevention.

PRINCIPLES AND PRACTICE OF ORAL SURGERY—S. L. Silverman, D.D.S. Cloth, 326 pp., 280 illustrations. Price, $6.00. P. Blakiston's Son & Co., Philadelphia.

This is somewhat of an elementary text, containing many illustrations from other existing texts. The author has, however, carefully presented his subject. He has lucidly imparted governing principles and the essentials of technic. The final result being the setting forth of the proper procedures when dealing with conditions embraced in the field of oral surgery.

THE MEDICAL CLINICS OF NORTH AMERICA — (Issued serially, one number every other month). Volume X, Number III, (Mayo Clinic Number, November, 1926). Octavo of 275 pages with 55 illustrations. Per clinic year, $16 net. W. B. Saunders Company, Philadelphia and London.

Received.

PRACTICE OF PREVENTIVE MEDICINE—J. G. Fitzgerald, M. D. Second Edition. Price, $7.50. C. V. Mosley Company, St. Louis, Mo.

The author is professor of Hygeine and Preventive Medicine at the University of Toronto. In this text he has outlined the principles of preventive medicine as well as the essentials requisite to attain results. As such the text supplies for practitioners and workers the fundamentals for intelligent supervision of community preventive activities. It is a most dependable reference and guiding discussion.

DISEASES OF WOMEN—Harry S. Crossen, M. D. Sixth Edition. Prise $11.00. C. V. Mosley Company, St. Louis, Mo.

This is the sixth revised edition of a text that has ever commanded our admiration and good opinion. In this edition we find it again fully abreast of the day. New material has been added, including the use of iodized oil for X-ray visualization of the tubal and uterine cavities. Featuring as it does, first diagnosis and then treatment, it is ever found to be a source of helpfulness. One will find effective measures that accomplish. results and relief by means of medical treatment. The surgical technic is complete and of recognized standard. All in all it is a text that every medical man will find to be a guide and dependable consultant for all of his gynecological work.

SHELL SHOCK AND ITS AFTERMATH—Norman Fenton, Ph. D. Price $3.00. C. V. Mosley Co., St. Louis, Mo.

An intelligent, interesting discussion of this war complication.

PHYSIOLOGY AND BIO-CHEMISTRY IN MODERN MEDICINE—J. J. R. Macleod, Toronto. Fifth Edition. Price $11.00. C. V. Mosley Company, St. Louis, Mo.

This standard, valued text is brought up to the science of physiology as it stands today by this fifth revised edition. It retains its oroginal purpose in serving as a guide to the application of the truths of physiology in the bedside study of disease. We know of no text that is so thorough, wherein the medical application is so intimate. We urge anew that every medical man utilize this text for reading and study in order that his conception of physiological principles may harmonize with our present day truths.